Study on Council Directive 2011/64/EU on the structure and rates of excise duty applied to manufactured tobacco

Final Report

Volume 1

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Abstract

The purpose of this Study is to provide a comprehensive and evidence-based evaluation of Council Directive 2011/64/EU on the structure and rates of excise duty applied to manufactured tobacco. It consists of two Volumes: (1) a retrospective evaluation of the performance of the Directive against its stated objectives, and (2) a forward-looking impact analysis involving the assessment and the comparison of different measures to address a set of policy issues identified, including the 'no EU action' scenario. A baseline analysis of market structures, demand and tax policies in the different EU Member States and of their recent trends is also provided.

The Study features a quantitative analysis of the demand for tobacco products in the Union and of the effects of taxation *vis-à-vis* other factors. On a qualitative level, the analysis is supported by the results of large-scale consultations and interviews with key informants, including *inter alia* tax and public health authorities of the Member States, representatives of tobacco and electronic cigarettes industries, public health academic experts and associations, and others.

The results of the Study contribute to clarify how fiscal policies, and more specifically the provision of the EU tobacco excise legislation, influence the price levels and the affordability of tobacco products and, in turn, the level of the demand, the consumer substitution behaviour, cross-border 'shopping' and illicit trade patterns, and the Member States tax revenues. The Study also reviews and updates the conclusions of previous Commission studies on the impact of harmonising at EU level the tax treatment of electronic cigarettes and heated tobacco products, comparing the effects of different possible courses of action.

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Retrospective Evaluation

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1. INTRODUCTION

1.1 Nature and content of the Report

➢ **NATURE OF THE REPORT**

This Final Report (the 'Report') has been prepared in the framework of the Study on the Impact Assessment of Council Directive 2011/64/EU on the structure and rates of excise duty applied to manufactured tobacco (the 'Assignment' or the 'Study'). The Report is submitted to the European Commission – Directorate General for Taxation and Customs Union (DG TAXUD) by a grouping led by Economisti Associati s.r.l. and including Centre for European Policy Studies, EUROPE Ltd, CASE - Center for Social and Economic Research, wedoIT- solutions GmbH and ECOPA (hereinafter collectively referred to as "the Consortium" or "the Consultant").

➢ **STRUCTURE AND CONTENT OF THE REPORT**

The Report is divided in two volumes. **Volume 1** focuses on the retrospective evaluation of Directive 2011/64/EU and includes five Sections as follows:

- The remainder of **Section 1** provides an overview of the ***background and context*** of the Assignment.
- **Section 2** presents the ***evaluation framework and the methodology*** and tools implemented under the Assignment.
- **Section 3** contains an extensive analysis of the ***'baseline' situation***.
- **Section 4** provides the draft results of the ***retrospective evaluation*** component of the Assignment.
- **Section 5** summarises the evaluation ***findings and policy problems*** identified.

Volume 2[1] contains the forward-looking component of the Assignment, and is divided into three main sections:

- **Section 6** spells out the ***policy scenarios for change*** of the Directive that have been considered.
- **Section 7** contains the detailed ***impact analysis*** of the different scenarios considered.
- **Section 8** provides a ***comparative assessment*** of the policy scenarios examined and the ***conclusions*** of the Assignment.

The Report includes also a separated **Volume 3**, which contains various annexes, including background information, the specifications of the econometric models used, the stakeholder's consultation tools, and the bibliography.

[1] No yet published

1.2 Overview of Directive 2011/64/EU

➢ **PURPOSE, SCOPE AND MEASURES**

In 2011, the Council adopted the Directive 2011/64 'on the structure and rates of excise duty applied to manufactured tobacco' (hereinafter 'the Directive')[2], which codified the previous common fiscal legislation on manufactured tobacco in the EU in a single act.[3] In line with the previous legislation, the Directive aims at harmonising the excise duty regimes in Member States (MS), with a view to ensure a ***proper functioning of the internal market*** and, at the same time, a ***high level of health protection***, in accordance with the Treaty requirements and international commitments.[4] More specifically, the Directive's recitals explain the rationale and purpose of the legislation, as follows[5]:

- the maintenance of a functioning economic union requires healthy competition, and this presupposes that the application in the Member States (MS) of taxes affecting the consumption of products in this sector 'does not distort the conditions of competition and does not impede their free movement within the Union';
- the imperative needs of competition imply a system of freely formed prices for all categories of manufactured tobacco;
- for the proper functioning of the internal market, it is necessary to establish minimum excise duties for all categories of manufactured tobacco;
- as regards prices and excise levels, in particular for cigarettes — by far the most important category of tobacco products — as well as for fine cut-tobacco (FCT), considerable differences between MS may disturb the operation of the internal market. A certain degree of convergence between tax levels would help to reduce fraud and smuggling within the Union;
- such convergence would also help ensuring a high level of protection for human health. The level of taxation is a major factor in the price of tobacco products, which in turn influences consumers' smoking habits. Fraud and smuggling undermine tax-induced price levels, and thus jeopardise the achievement of tobacco control and health protection objectives;
- the minimum levels for FCT must be closer to the minimum levels applicable to cigarettes, so as to take account of the degree of competition existing between the two products, as well as their equally harmful character.

Although not mentioned in the recitals, it is also implicit that there is a general objective related to the stability and predictability of tax revenues collected by Member States (MS) and their safeguard against the adverse effects of tax fraud and circumvention, tax-induced substitution across products, 'price-wars' and other market disruptions. It is interesting to note that the basic principles of the Directive concern establishing a proper equilibrium between different and sometimes conflicting objectives: i.e. leaving MS free to set their national fiscal policies while avoiding excessive cross-country differences; and ensuring freely-formed prices while at the same time envisaging fiscal measures that can influence price levels in relation to the stated policy objectives.

[2] 'Council Directive 2011/64/EU of 21 June 2011 on the structure and rates of excise duty applied to manufactured tobacco', Official Journal of the European Union L 176/24, 5.7.2011.
[3] In particular, Directives 92/79, 92/80, 95/59 on the structure and rates of excise duty applied on manufactured tobacco and subsequent amendments.
[4] In particular the Framework Convention on Tobacco Control (FCTC) of World Health Organization (WHO), 2003. Available on the website http://www.who.int/fctc/en/ and directly downloadable from http://apps.who.int/iris/bitstream/10665/42811/1/9241591013.pdf?ua=1
[5] Author's rephrased summaries.

The ***scope*** of the Directive includes manufactured tobacco products that are subject to excise duty, divided in three main categories:

1. cigarettes,
2. cigars and cigarillos,
3. smoking tobacco, further subdivided into:
    a. fine-cut tobacco (FCT) for the rolling of cigarettes
    b. other smoking tobacco (OST).

The measures envisaged to achieve the objectives of the Directive are essentially of three types, namely:

- ***Definitions*** of tax categories for the different manufactured tobacco products listed above.
- Provisions on the ***tax structures*** applicable to the different categories, i.e. the 'ad valorem component' (expressed as a percentage of the maximum retail selling price of products), the 'specific component' (per quantity or per weight), and the rules and limits for the application of a 'mixed structure', where required. The Directive also lays down the rules for applying an optional 'minimum excise duty' (MED).
- Provisions on the ***minimum rates*** applicable to the different product categories, expressed as a monetary amount per unit or as a percentage of the selling price. The Directive establishes also the mechanism to calculate the ***weighted average retail selling price (WAP)*** for cigarettes and fine-cut tobacco. The WAP has replaced the previous 'most popular price category' (MPPC) as the reference value to fix the minimum rates.

These are complemented with various measures extending ***exemptions and derogations*** (permanent or temporary) for certain countries or territories, and other miscellaneous rules and provisions.

➢ INTERVENTION LOGIC

The underlying intervention logic of the Directive can be reconstructed based on the above elements. In particular, it is useful for the purpose of this Study to explain how 'inputs' – i.e. the Directive's provisions - are supposed to achieve the intended overarching and specific policy objectives (see Figure 1.1).

- In summary, there are two ***overarching objectives*** that consists in '*ensuring the proper functioning of the internal market and, at the same time, a high level of health protection*'. The two overarching objectives respond to different needs that are not entirely aligned, i.e.: extending to manufactured tobacco the freedoms and principles of the Single Market, while bearing in mind that tobacco products can cause serious harm to health and their consumption should be discouraged.

- The overarching objectives clearly require the contribution of other sectoral policies, and in particular the tobacco control policy (laid down in Directive 2014/40 - 'TPD2' - and related measures), the EU strategy against illicit trade of tobacco, and the EU overall tax and customs legislation. It is therefore useful to break them down into a set of ***specific objectives*** more directly connected with the mechanisms and tools of the tobacco excise legislation (but influenced also by external factors such as national fiscal policies, industry practices, consumer behaviours, etc.). Six main specific objectives can be identified:

    1. Support EU market integration (i.e. avoid partitioning of geographical market) and removal of obstacles and barriers to it.

2. Avoid tax-induced competition distortions, both cross-country (between low- and high-taxing countries) and cross-product (between products subject to different levels of taxation).
3. Ensure freely-formed prices for all groups of manufactured tobacco in all geographical markets.
4. Pre-empt fraud and smuggling (tax avoidance, circumvention and 'abuse' of tax categories).
5. Deter consumption through taxation and by avoiding that consumers have access to 'less-taxed' alternatives.
6. Ensure a proper functioning of the excise duty system.[6]

The partly divergent polarisation of the overarching objectives has repercussion also at this level. So, while certain specific objectives may contribute to both overarching ones (e.g. pre-empting fraud and smuggling), others may have controversial effects. For instance, aligning the taxation of cigarettes and fine-cut tobacco may support public health protection (through discouraging product substitution), but may also provide a competitive advantage to cigarette manufacturers and may unintendedly trigger substitution with illicit products, thus hampering the proper functioning of the internal market.

- The ***inputs*** of the intervention logic are essentially the Directive provisions, which, as seen, are of three main types:

  1. the adoption of common product definitions, tax categories and procedures;
  2. the harmonisation of the excise duty structures for the different categories of products;
  3. the establishment of minimum excise duty rates.

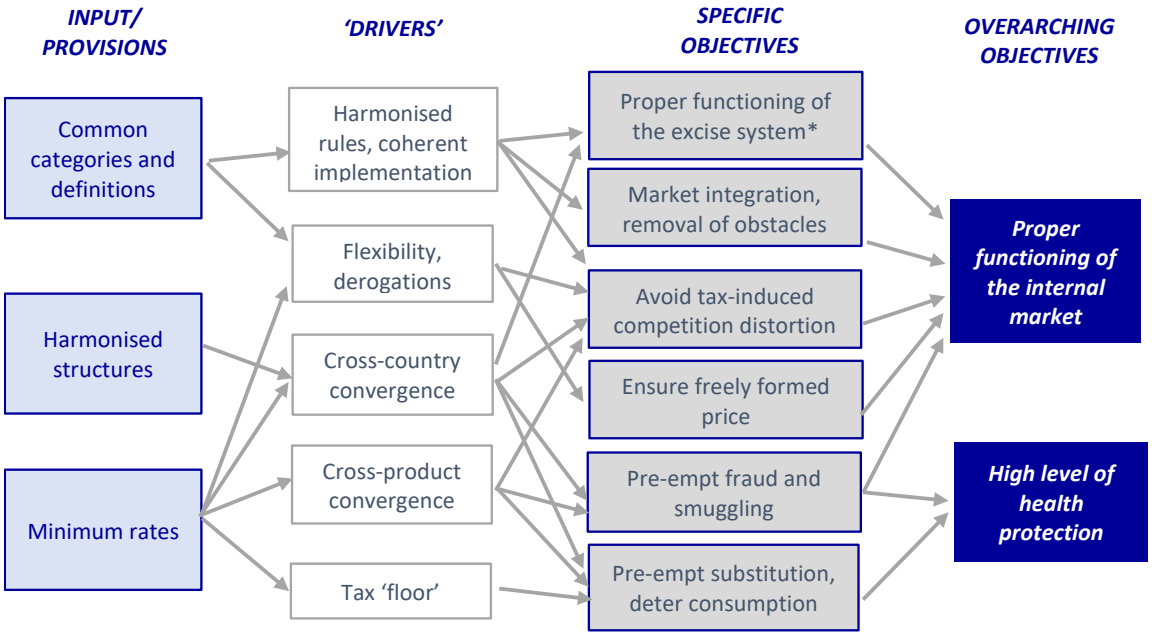
  However, how these inputs relate to the above policy objectives is not straightforward. In this sense, it can be useful to clarify the ***drivers*** through which inputs are supposed to contribute to the expected outcomes and impacts, in particular:

  1. progressive convergence[7] in the excise duty structures and rates applied by the different MS;
  2. progressive convergence in the tax levels applied to different categories of potentially substitute products, and in particular cigarettes and FCT;
  3. the establishment of a tax 'floor' to reduce the affordability of tobacco products for consumers by keeping the 'entry price' sufficiently high;
  4. ensuring sufficient flexibility in the application of rules to local conditions and - where needed - derogations, to facilitate adaptation and prevent market disruptions and unintended side effects;
  5. overseeing an overall coherent interpretation and application of EU definitions, categories and rules by all MS authorities (i.e. removing any legal uncertainties that might possibly lead to discrepancies of classification or implementation).

[6] The text of Directive 2011/64 does not mention among its objectives the proper functioning of the excise system, which is the subject of Directive 2008/118 (the 'Horizontal' Directive), but it seems implicit that the rules and provisions of Directive 2011/64 should also ensure effective and efficient administration of excise duty on tobacco and collection of tax receipts.

[7] In this context, 'convergence' means the reduction of the gap between the highest and the lowest tax regimes registered across EU countries or across different tobacco products.

Figure 1.1 – Reconstructed intervention logic of Directive 2011/64



Source: *Author's elaboration based on the text of Directive 2011/64 and underlying documents.*
Note: *(*) this specific objective is deemed implicit although not expressly mentioned in the legislation.*

➢ OVERVIEW OF STRUCTURES AND RATES

Since the excise duty structures and rates established in the Directive are the main subject matter of the Study, it is useful to briefly recap their salient features (see Table 1.1).

- The EU rules require applying a ***mixed structure*** – i.e. a mix of *ad valorem* and specific excise duty - to cigarettes, and that the specific component is comprised within a certain range. This is one of the first measure adopted for the harmonisation of tax regimes applied across the EU, which has been in place since the 1970s. The provision includes the establishment of upper and lower thresholds for the specific component, which have changed overtime while remaining quite broad. The combined effects of the mixed structure on the market are showed in Box 1.1)
- Nearly all MS have implemented the optional '***minimum excise duty*' *(MED)*** foreseen under Article 8.6, which is a sort of excise 'floor' below which no product can go. Most MS have set MED levels very close to the level of excise duty levied on the WAP price category. This is tantamount to taxing the lower half segment of the market with a fully specific tax, with boosting effects on price levels. There are different interpretations of Article 8.6 across MS, and some countries have adopted a 'minimum total tax' that is a MED inclusive of VAT, whose practical effect are better described in Box 1.1 below.
- The minimum rates for cigarettes consist of two conditions that must be simultaneously fulfilled, of which one relates to the WAP level - thus varying across MS (hereinafter the '***relative minimum rate***'), and the other expressed as a minimum amount of Euro per thousand sticks, irrespective of WAP - i.e. for all cigarettes in all MS (hereinafter the '***fixed minimum amount***'). However, the relative minimum condition may be derogated if the overall excise duty (specific plus ad valorem) levied at WAP level exceeds a certain monetary amount (hereinafter, in

line with Commission's terminology[8], the '***escape clause***'). The current 'minima' were established under Directive 2010/12 and in the case of cigarettes and FCT some staged increases were planned. Box 1.2, further below, explains the minimum rates mechanisms and how their effects on national tax regimes.

- For ***manufactured tobacco products other than cigarettes***, the Directive leaves the MS more freedom in establishing the applicable structure, which can be fully specific (per Kg or per units, where relevant), fully ad valorem, or a mixture of the two. Depending on the structure chosen, the Directive indicates the minimum rates or amounts that MS need to comply with. The option of fixing a minimum excise duty (i.e. the abovementioned 'MED') is available also for these products, when the structure chosen is not fully specific (otherwise it would be redundant). The tax base of fine-cut tobacco and other smoking tobacco is per Kg of product, while in the case of cigars and cigarillos the excise duty is typically calculated per 1000 items except a few countries where it is calculated per weight (or per 'conventional Kg').
- There is no explicit ***correlation between the rates*** applied to ***cigarettes*** and other manufactured tobacco products, and in particular ***fine cut tobacco*** (FCT). In the impact assessment underlying the Directive a 2:3 ratio is assumed for reference[9] but, as discussed further below, there is no standard equivalence between FCT (expressed in grams) and cigarettes (expressed in units), so the comparison of rates is not straightforward. The Directive envisaged a five-step progressive increase in the minima for FCT that partly (but not entirely) correspond to the parallel two-steps increase of minima for cigarettes. For the other tobacco products, no multi-stage increases were envisaged, so the 'gap' in tax levels with cigarettes and FCT minima has enlarged overtime.

Table 1.1 – Overview of the excise duty rates and structures applicable to manufactured tobacco under Directive 2011/64

Product category	Tax structures and rates

Cigarettes	• Mandatory mixed structure including both an ad valorem excise duty and a specific excise duty. The specific component has to respect the following thresholds:
	  ○ Upper threshold: 76.5% of total tax burden (i.e. the sum of the specific component and the ad valorem component and VAT levied at WAP level).
	  ○ Lower threshold: 5% (until the end of 2013) and 7.5% (since Jan. 2014)
	• Minimum rates for the overall excise duty (not including VAT), as described below:
	  ○ Until the end of 2013: 57% of the WAP and not less than EUR 64 per 1000 cigarettes (irrespective of the WAP), or EUR 101 per 1000 cigarettes at WAP level.
	  ○ Since 1st January 2014: 60% of the WAP and not less than EUR 90 per 1000 cigarettes (irrespective of the WAP), or EUR 115 per 1000 cigarettes at WAP level.
	  ○ Certain MS – namely BG, EE, EL, LT, LV, HU, PL, RO and HR – were granted a transitional period until the end of 2017 to reach the above minimum levels.
	• A minimum excise duty (MED) may apply (i.e. a fixed monetary amount per quantity applicable if the amount of the excise duty falls below a minimum floor), provided the 'mixed structure' requirement is respected.

Fine-cut smoking tobacco	• MS may opt for a fully specific (per Kg) or a fully ad valorem excise duty (calculated on the maximum retail selling price of each product), or a mixture of the two.
	• The overall excise duty (not including VAT) must be no less than:
	  ○ 40% of WAP or EUR 40 per Kg (until end of 2012),
	  ○ 43% of WAP or EUR 47 per Kg (until end of 2014),
	  ○ 46% of WAP or EUR 54 per Kg (until end of 2017),
	  ○ 48% of WAP or EUR 60 per Kg (until end of 2019),
	  ○ 50% of WAP or EUR 60 per Kg (since 1st January 2020).
	• If the structure chosen is fully ad valorem or mixed, MS may establish a minimum amount of excise duty.

[8] See SEC(2008) 2267 Commission staff working document - Accompanying the Proposal for a Council Directive amending Council Directive 95/59/EC, 92/79/EEC and 92/80/EEC on the structure and the rates of excise duty applied to manufactured tobacco - Impact assessment summary.
[9] See: SEC(2008) 2267.

Product category	Tax structures and rates
Cigars and cigarillos	• MS may opt for a fully specific (per Kg or number of items) or a fully ad valorem excise duty (calculated on the maximum retail selling price of each product), or a mixture of the two. • The overall excise duty (not including VAT) must be no less than 5% of the retail selling price or EUR 12 per 1000 items or per Kg. • If the structure chosen is fully ad valorem or mixed, MS may establish a minimum amount of excise duty.
Other smoking tobacco	• MS may opt for a fully specific (per Kg) or a fully ad valorem excise duty (calculated on the maximum retail selling price of each product), or a mixture of the two. • The overall excise duty (not including VAT) must be no less than 20% of the retail selling price or EUR 22 per Kg. • If the structure chosen is fully ad valorem or mixed, MS may establish a minimum amount of excise duty.

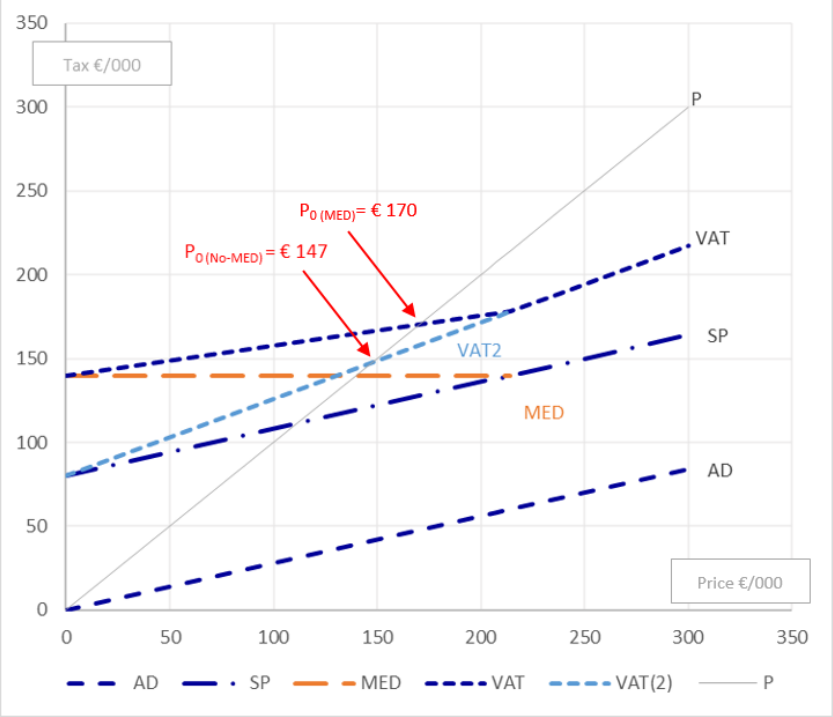
Source: *Author's analysis of EU legislation.*
Note: *Certain special treatment applicable to specific MS or specific regions or territories are not displayed.*

Box 1.1 – Excise duty structure effects on tax and price levels

The graph below (Figure 1.2) show the relations between tax components and price in a hypothetical market. The simulation is based on average EU parameters (2016), i.e.:

- WAP equal to € 238 per 1000 cigarettes;
- specific component of € 80 per 1000 units, ad valorem component of 28%, VAT at 17.7% of retail selling price;
- MED equal to € 140 (i.e. 96% of the excise duty at WAP level).

Figure 1.2 - Tax and price levels in a hypothetical national market, with MED



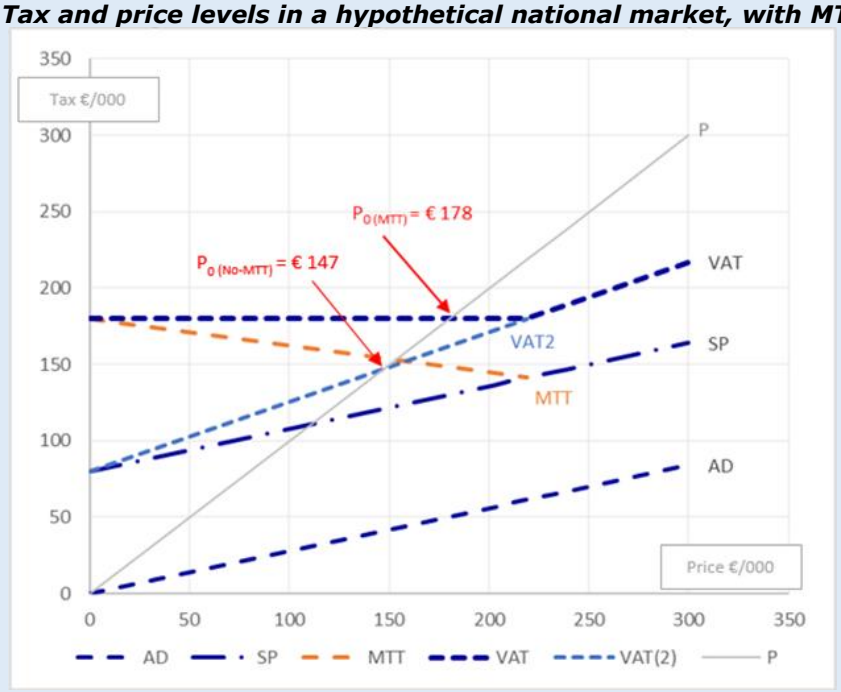
Source: *Author's elaboration*
Legend*: AD=ad valorem excise duty; SP= specific excise duty; MED; minimum excise duty; VAT=value-added tax; VAT2=the level of VAT in the absence of MED; P=price*
Note: *In the diagram the various tax components are displayed in a cumulative manner, so the 'VAT' line coincides with the total tax burden (excise duty plus VAT), and the difference between the 'P' and 'VAT' lines can be considered as the 'pre-tax price'.*

The slope and size of areas may obviously vary depending on the actual combination of ad valorem, specific component and MED (as well as VAT level) in individual countries. The sum of 'specific' and 'ad valorem' (and MED where relevant) at each price level point represents the

'excise yield'. The addition of VAT represents the total tax burden. The interception of the P grey line (retail selling price) and the VAT line (total tax burden) – i.e. point P_0 - corresponds to 'lowest viable price', that is the price level below which the operators would trade at a loss. Actually, the retail price contains also other costs element (raw materials, production, distribution, retailers' margin etc.) so the actual 'break-even' point is in fact higher than P_0, but this variable is nonetheless useful since it is directly connected to fiscal policies. The simulation below (Figure 1.2) provides the P_0 value with or without MED and shows how the application of MED may lift the lowest viable price from € 147 to € 170.

The following Figure 1.3 develops the identical scenario with the so-called 'minimum total tax' (MTT), which is tantamount to an MED inclusive of the VAT. For comparability, in the simulation we have set the MTT equal to € 178 that corresponds to the same price level where the conventional MED would 'kick-in' (€ 214). In this case, the lowest viable price P_0 is equal to € 178 instead of € 170, because of the regressive effects of the MTT, which increases the tax burden as the price decreases. Two MS has adopted the MTT, but it is worth reminding that this mechanism has currently no legal basis in the Directive

Figure 1.3 - Tax and price levels in a hypothetical national market, with MTT



Source: *Author's elaboration*
Legend*: AD=ad valorem excise duty; SP= specific excise duty; MTT; minimum total tax; VAT=value-added tax; VAT2=the level of VAT in the absence of MTT; P=price*
Note: *In the diagram the various tax components are displayed in a cumulative manner, so the 'VAT' line coincides with the total tax burden (excise duty plus VAT), and the difference between the 'P' and 'VAT' lines can be considered as the 'pre-tax price'.*

Both figures below can describe also the tax regimes applicable to products other than cigarettes. In these cases, there is no obligation of mixed structure and most of MS adopts a fully specific or a fully ad valorem (sometimes with MED) regime, which translate into a total burden slope that is more or less steep depending on the proportional component of the excise duty.

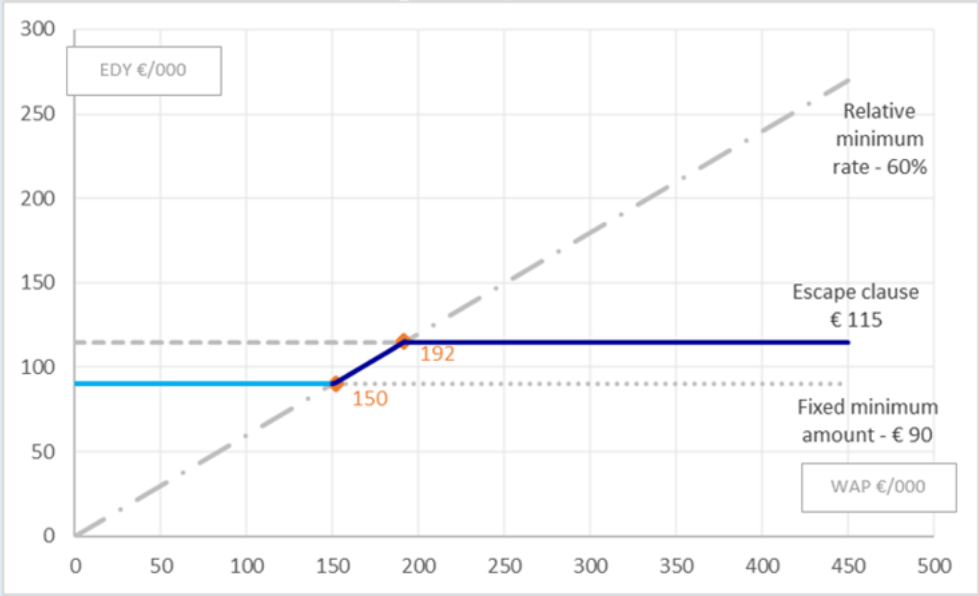
Box 1.2 – EU minimum rates effects on tax and price levels

Figure 1.4 below show the combined effect of EU minimum rates provisions in relation to countries' price and tax levels. According to EU rules, the excise duty yielded at WAP level (EDY) must be always above the dark blue line, while the excise duty yielded on the lowest price category must be above the light blue line. In practice, the effects of the EU minimum rates can be segmented as follows:

- For MS with WAP below €150: all cigarettes (irrespective of price) need to comply with the fixed minimum (the relative minimum is irrelevant since the line lays below the fixed minimum line).
- For MS with WAP between €150 and €192: the relative minimum provision prevails, so the tax levied should be raised as the WAP increases. The excise yield on the lowest price category can lay below the dark-blue line provided it complies with the fixed minimum amount provision.
- For MS with WAP above EUR 192: at this level the 'escape clause' kicks-in (corresponding to an excise yield of €115 per 1000 cigarettes). The excise yield on the lowest price category can lay below the dark-blue line provided it complies with the fixed minimum amount provision.

As the current average WAP in the EU is likely close to €250, most of MS clearly fall in the third segment.

Figure 1.4 – EU minimum rates on cigarettes



Source: *Author's elaboration*

The effects of EU minimum rates provisions for FCT are different since the two provisions (fixed amount and relative minimum rate) are not cumulative but alternative. In this case, two segments can be identified:

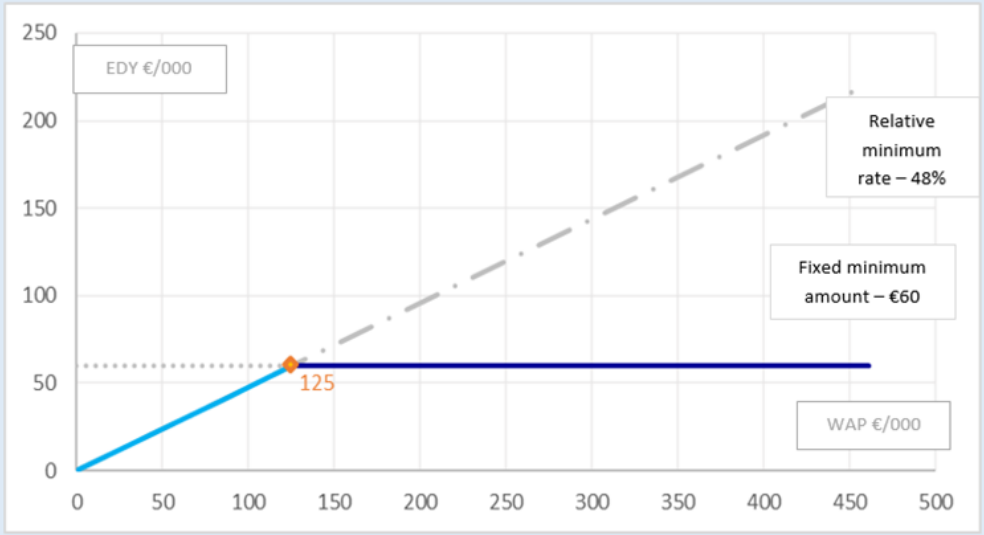
- For MS with WAP below €125: the relative minimum rate prevails so the excise levied at WAP must exceed 48% of the WAP itself (but the lower-priced products may be taxed less than that).
- For MS with WAP above €125: the fixed minimum amount provision generally prevails so the excise levied on all products must exceed € 60 per Kg. However, if at WAP level the relative minimum provision is met there can be in theory products that do not comply with the € 60 requirement.

It is worth highlighting that there is no link between the EU minimum rates and the excise structure applied at MS level. For instance, a MS with a WAP of €120 per Kg might in principle apply a fully specific excise duty of €58 (i.e. below the EU fixed minimum amount), since it would result in an excise yield of 48.3% of WAP, which comply with the relative minimum provision.

The effects of the EU minimum rates on cigars and cigarillos and on other smoking tobacco are similar, apart from the absence of reference to the WAP, which entails that each price category

of products must respect either of the two conditions. In other words, the entire market must fall above the thresholds designed in Figure 1.5.

Figure 1.5 – EU minimum rates on FCT



Source: *Author's elaboration*

- **PREVIOUS EU EXCISE LEGISLATION**

Harmonised rules and arrangements for the taxation of manufactured tobacco in the EU have been in place since the 1970s[10]. Since then, the legal framework has been revised and amended several times, i.e. between 1992-95, in 2002-03, and in 2010.[11] Directive 2011/64 has substantially repealed the pre-existing legislation but most of its provisions (and underlying principles) have been carried over from earlier versions. In particular, no relevant policy change has been introduced since its predecessor Council Directive 2010/12.[12] In this sense, certain effects of the Directive analysed in this Report may actually derive to some of these earlier versions, although for simplicity they will be generically related to the Directive in the analysis. The synoptic Table 1.2 below provides a quick overview of how the EU excise legislation on tobacco has evolved overtime.

Table 1.2 - The evolution of the EU excise legislation on tobacco

	Early period ('70)	1992-1995	1999-2002	2010-today
Main justifications	Completion of internal market	Added: need to clarify definitions	Added: spur convergence in tax levels of MS	Added: compliance with FCTC and health objectives
Harmonisation of structures	Mixed structure requirement (specific component: 5%-75% of the excise levied on MPPC, then 5-%-55% of the total tax burden)	=	=	Specific component: 5-76.5%, then 7.5%-76.5%

[10] Council Directive 72/464/EEC, later amended by Directive 1979/32/EEC

[11] Council Directive 92/79/EEC; Council Directive 92/80/EEC; Council Directive 95/59/EC; Council Directive 2002/10/EC; Council Directive 2003/117/EC, Council Directive 2010/12/EC.

[12] Council Directive 2010/12/EU of 16 February 2010, amending Directives 92/79/EEC, 92/80/EEC and 95/59/EC on the structure and rates of excise duty applied on manufactured tobacco and Directive 2008/118/EC.

	Early period ('70)	1992-1995	1999-2002	2010-today
Minimum rates – cigarettes		57% of RSP	57% of RSP and € 60 (then € 64 since 2006); 'escape clause' at € 95	57% of the RSP at WAP level and € 64 per 1000 units, then (2014) 60% and € 90 (2014); 'escape clause at € 101 then (2014) € 115
Minimum rates – other products		CC: 5% or ECU 7 per 1000 units FCT: 30% or ECU 20 per kg OST: 20% or ECU 15 per kg	CC: 5% or € 9 (then 11) per kg / 1000 units FCT: 30% or € 24 per kg (then progressively up to 33% an € 32 in 2004) OST: 20% or € 18 per kg (then € 20)	CC: 5% or € 12 per 1000 units / kg FCT: 40% or € 40, then up to 50% or € 60 per kg by 2020 OST: 20% or € 22 per kg
Reference price	MPPC	=	=	WAP
Minimum excise duty	Not higher than 90% of the excise yield on MPPC	=	Not higher than 100% of the excise yield on MPPC	MED allowed, provided it complies with mixed structure

Source: *Author's analysis of EU legislation.*
Legend: *CC = cigars and cigarillos; FCT = fine cut tobacco; OST= other smoking product; MPPC=most popular price category; WAP=weighted average price; MED=minimum excise duty; RSP=retail selling price.*

1.3 The general policy and operating context

➢ **SALIENT FEATURES OF THE EU EXCISE DUTY AND CUSTOMS SYSTEMS**

The overall EU excise system is regulated by ***Directive 2008/118/EC*** (also known as the 'Horizontal Directive'), which lays down the general provisions applicable to harmonised excise goods, leaving Member States free to establish non-harmonised consumption taxes on other goods.[13] Among other things, the Horizontal Directive establishes:

- general provisions and definitions to establish a clear and consistent framework throughout the EU (e.g. on 'authorised warehouse-keeper', 'duty-suspension arrangement', 'registered consignor / consignee' etc.);
- the rules for production, processing, and holding of excise goods, and the responsibilities of the subjects involved;
- the rules for the movements of excise goods under suspension of excise duty, describing procedures and roles of registered consignors and consignees. Moreover, it introduces the 'computerised system' (see below) designed to automate control over movements under excise duty suspension;
- the rules for the movements and taxation of excise goods after their release for consumption; both in cases of their acquisition by private individuals and distance sales (particularly relevant for the issue of cross-border shopping) and their holding in another MS. In particular Art. 32 of Directive 2008/118 establishes that in the case of excise goods acquired by a private individual for his own use, and transported from one MS to another by him, the excise duty of the country of purchase applies. The Directive also adds that to determine the intended 'private use' of such goods MS should take into account at least:

[13] "Council Directive 2008/118/EC of 16 December 2008 concerning the general arrangements for excise duty and repealing Directive 92/12/EEC", Official Journal of the European Union L 9/12, 14.1.2009.

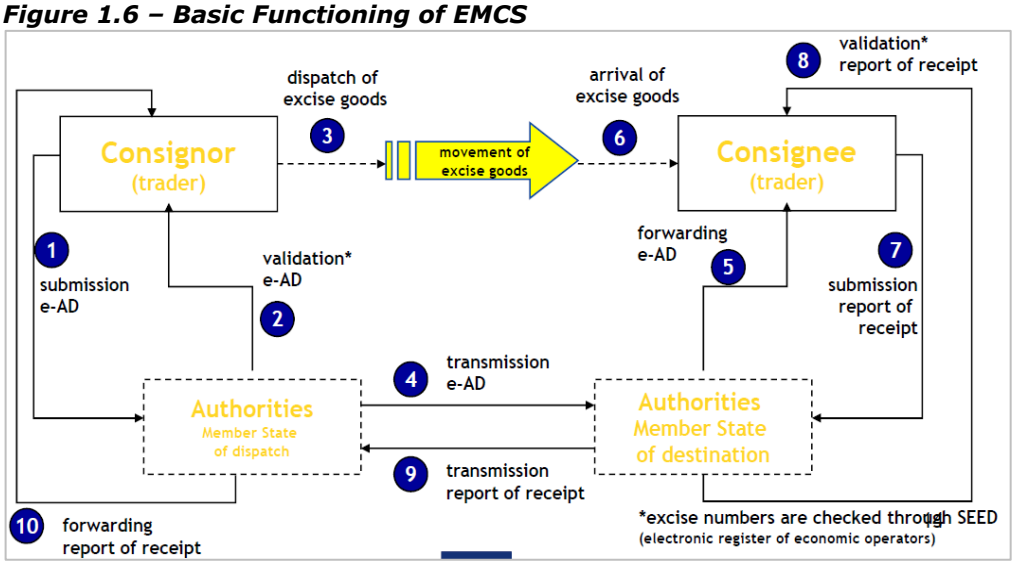
- the commercial status of the holder of the excise goods and his reasons for holding them;
- the place where the excise goods are located or, if appropriate, the mode of transport used;
- any document relating to the excise goods;
- the nature of the excise goods;
- the quantity of the excise goods (MS cannot set guide levels below certain quantities indicated in the Directive).

Two ***evaluation reports*** on the Directive 2008/118, published in 2015, showed some inefficiencies of the system mostly due to its complexity and multiple goals.[14] More recently an impact assessment study was conducted by the *Economisti Associati* Consortium to examine four main areas of possible improvement: (i) the legal and technical arrangements for the coordination of customs and excise procedures; (ii) the procedures for moving excise goods between businesses in different countries where excise duties have already been paid; (iii) disparities in MS handling exceptional situations (shortages, excesses, rejections, refusals, or interruptions of movements); and (iv) low-risk movements.[15] An external study on Art. 32 of the Directive 2008/118 on the acquisition and movements of duty-paid products by private individuals is also underway.

The establishment of a computerised system was envisaged since the earlier versions of the Horizontal Directive and was explicitly called for by the EU Council of Economic and Finance Ministers (ECOFIN) in 1998 due to the high level of fraud reported under the intra-EU circulation of excise goods. It was eventually adopted under the European Parliament and Council Decision 1152/2003 with the name of ***Excise Movements and Control System (EMCS)***[16] and since January it is mandatory that all movements of excise goods under suspension of excise duties are carried out under the EMCS (Figure 1.6). In practice, the EMCS allows for the real-time monitoring of movements of alcohol, tobacco, and energy products for which excise duty is to be paid. Under this system, every stage of movement of excise goods is documented through an electronic Administrative Document (e-AD). In addition to creating a paperless administration, the system also standardised and simplified procedures for traders, and accelerated the release of guarantees when goods arrive at their destination. It has been estimated that the introduction of the EMCS has resulted in administrative savings for MS of between EUR 27.5 and 37 million in 2014 alone.[17] Since 2012, EMCS incorporates the recording of control actions, the reporting of events that occurred during movements, and the exchange of information for facilitating administrative cooperation between the MS.

[14] See: Ramboll 'Evaluation of current arrangements for movements of excise goods released for consumption. Final Report' and 'Evaluation of current arrangements for the holding and moving of excise goods under excise duty suspension. Final Report.' For DG TAXUD, 2015.
[15] See EA et al. 'Study contributing to an impact assessment on Council Directive 2008/118/EC concerning the general arrangements for excise duty. Final Report 2017'. For DG TAXUD, Published in 2018.
[16] 'Decision No 1152/2003/EC of the European Parliament and of the Council of 16 June 2003 on computerizing the movement and surveillance of excisable products', Official Journal of the European Union L 162/5, 1.7.2003.
[17] Ramboll, "Evaluation of current arrangements for the holding and moving of excise goods under excise duty suspension", 2015.

Figure 1.6 – Basic Functioning of EMCS



***Source**: DG TAXUD presentation 'Indirect taxes other than VAT'.*
***Legend:** e-AD= electronic Administrative Document; SEED= System of Exchange of Excise Data*

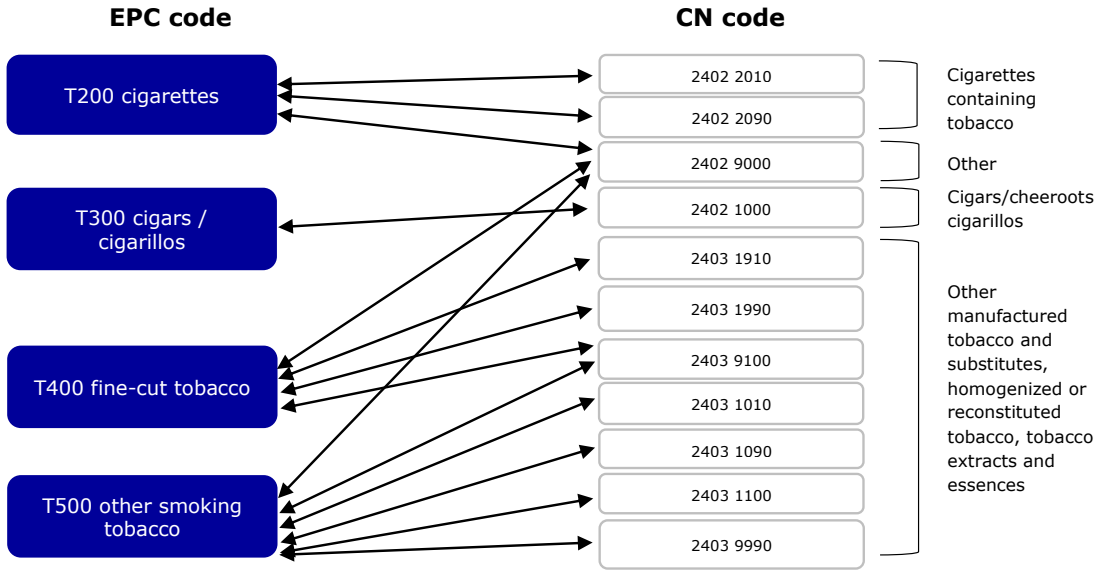
The EMCS makes use of two distinct product classification:

1. The ***Excise Product Codes***, which mirrors the four main categories of manufactured tobacco products as defined in the Directive 2011/64 (Articles 2-5) and are used by the competent authorities to determine the level of excise duty applicable.
2. The ***Combined Nomenclature*** (CN) code, i.e. the harmonised classification that form parts of the EU Common Customs Tariff, and applies to internal and external movement of goods. The CN is based on the Harmonized System (HS) run by the World Customs Organisation (WCO) and is updated on a yearly basis in accordance with HS modifications. The CN code has two digits more than HS code, which allows a more granular classification, and is accompanied by Explanatory Notes, which do not have legally binding force.

The excise product code and the CN codes have different origins and purposes, therefore the categorisations and the definitions used do not fully match, and there is no explicit reference to the CN definitions in the fiscal classification, as is for instance the case with alcohol products. A correspondence table was added to the EMCS System Specifications[18] with the aim of facilitating a consistent coding of products by operators. However, the correspondence between the two series of codes is 'many to many' i.e.: there can be several CN codes for the same EPC and *vice versa*, so it does not allow univocal interpretations (Figure 1.7).

[18] Appendix B of the Functional Excise System Specification (FESS).

Figure 1.7 – Correspondence between EPC and CN codes for manufactured tobacco



Source: *Author's elaboration based on FESS – Appendix B.*

For legal certainty on the correct 'tarification' of products, and to prevent the risk that the attribution of a certain CN code is challenged (and fined) by customs or tax authorities when the product is already commercialised, economic operators may apply for a ***Binding Tariff Information (BTI)***. These are classification decisions (for customs purposes only) issued by the customs administration of any Member State, which are binding throughout the EU for a period of normally three years (unless the classification code changes or it is affected by EU or international customs tariff measures or by a CJEU judgment). For products of dubious classification, such as certain new products, BTIs represent a practical solution to avoid disparities of treatment and ensuing disputes with customs authorities. However, since the tax classification typically follows the CN classification, BTIs may also become a source of controversy between countries. Certain economic operators may be tempted to request a BTI in jurisdictions where it is more likely to obtain a more favourable (tax-wise) classification, in order to get competitive advantages across all EU national markets.

Finally, the legal and operational framework of the EU excise duty system also includes other pieces of legislations that are worth briefly mentioning:

- Commission Implementing Regulation 612/2013 on the operation of the register of economic operators and tax warehouses, related statistics, and reporting pursuant to Council Regulation (EU) No 389/2012 on administrative cooperation in the field of excise duties (System of Exchange of Excise Data (SEED) - 612/2013);
- Council Regulation 389/2012 on administrative cooperation in the field of excise duties;
- Commission Implementing Regulation (EU) 2016/323 of 24 February 2016 laying down detailed rules on cooperation and exchange of information between MS regarding goods under excise duty suspension; and
- Regulation 952/2013 laying down the Union Customs Code (UCC) and Commission Implementing Regulation 2015/2447 laying down detailed rules for implementing certain provisions.
- Commission Implementing Decision of 28 July 2011 concerning the list of statistical data on the structure and rates of excise duty applied on manufactured tobacco to be provided by the Member States.

- **PUBLIC HEALTH PROTECTION**

On the side of tobacco control policy, EU institutions have implemented over the years a series of initiatives and measures aimed at protecting citizens from the hazardous effects of smoking and encouraging the reduction in the consumption of tobacco (especially among young people), in line with the provisions of Article 114(3) TFEU requiring to ensure a high level of health protection, although most of the competencies remain at the national level. In particular, to ensure a minimum and homogeneous level of consumer protection across the EU the European Parliament and the Council adopted in 2001 Directive 2001/37/EC on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco products, which was repealed and updated by Directive 2014/40 (also known as 'TPD2').[19] This product Directive represents the mainstay of EU legislation on the subject. The TPD2 now covers a broader range of products than Directive 2011/64, including herbal products for smoking, and in particular electronic cigarettes and their refill containers and other novel tobacco products (i.e. Heated Tobacco Products). A summary of the main provisions is reported in Box 1.3 below.

Contrary to novel food products that go through a centralised scientific review process before being authorised at the EU level, the novel tobacco products category undergoes under the TPD2 a decentralised notification procedure at the MS level and MS are left free to decide whether an authorisation for local commercialisation is required or not. No common procedure was therefore established to decide whether a novel tobacco product is allowed to enter the common market and qualifies as 'smokeless' or 'smoking' for regulatory purposes. The issue did not appear relevant when the preparatory studies for the Directive were carried out and smokeless products were mainly represented by tablets and chewing gums.

Box 1.3 - Overview of main TPD2 measures in force since 2016

- A key provision on larger and mandatory pictorial health warnings, covering 65% (as against a 75% original Commission's proposal) of the front and the back of cigarette and roll-your-own tobacco (RYO) packs. These would be drawn from models laid out in a Commission Implementing Decision.
- An outright ban on tobacco flavours (vanilla or candy) and four-year phasing-out ban on cigarettes and RYO tobacco with menthol that mask the taste and smell of tobacco thereby helping smoking initiation;
- the replacement of tar, nicotine and carbon monoxide (TNCO) labelling with an information message that informs consumers that '*Tobacco smoke contains over 70 substances known to cause cancer*".
- A ban on promotional or misleading packets. Packets containing less than 20 cigarettes have also been banned as these are particularly appealing to young age groups with limited spending power. Another ban on slim cigarettes proposed by the Commission for similar reasons was eventually dropped from the finally approved text.
- Mandatory electronic reporting on ingredients contained in tobacco products and electronic cigarettes and their effects on health and addiction through a standardised electronic format.
- Safety and quality requirements for e-cigarettes including maximum nicotine concentrations and volumes for cartridges, tanks and nicotine liquid containers. Given the high variability of possible toxicity patterns due to poor standardisation of these products, criteria have also been introduced to regulate ingredients and ensure that e-cigarettes should deliver the same amount of nicotine for puffs of the same strength and duration. The mandatory sanitary licensing for the sale of these products originally proposed by the Commission remained in place only for those with health claims attached.

[19] "Directive 2014/40/EU of the European Parliament and of the Council of 3 April 2014 on the approximation of the laws, regulations and administrative provisions of Member States concerning the manufacture, presentation and sale of tobacco and related products and repealing Directive 2001/37/EC", Official Journal of the European Union L 127/1, 29.4.2014.

- Packaging and labelling rules for e-cigarettes warning consumers that e-cigarettes contain nicotine and should not be used by non-smokers. Information on adverse effects, risk groups and addictiveness and toxicity has also been included. Cross-border advertising and promotion of e-cigarettes has also been prohibited.
- Monitoring and reporting requirements of developments related to e-cigarettes including a notification requirement for manufacturers on sales volumes, consumer preferences and trends and on Member States Governments on evidence that e-cigarettes lead to nicotine addiction or to tobacco consumption, especially in young people and non-smokers.
- The possibility left to Member State to ban cross-border distance sales, as well as the possibility to ask for age verification. At any rate, even if a Member State does not ban such sales, online retailers must register with both the competent authorities where they are located, and where they plan to sell their products.
- Measures to combat illicit trade of tobacco products including an EU-wide tracking and tracing system for the legal supply chain after the original Commission's proposal to track the whole chain was dropped (the Track & Trace system is coming into force in May 2019).

The TPD2 was transposed and become fully operational in May 2016, except certain parts for which a different transposition deadline was set (e.g. the 'track-and-trace' system). However, many Member States had introduced the bulk of its provisions as national legislation in the previous years. The TPD2 has been accompanied by a number of recommendations on the areas of more direct national responsibility including a recommendation on smoke-free environments aimed at generalising this kind of bans across the EU and various campaigns to prevent smoking initiation, raising awareness about the dangers of smoking and the benefits of cessation (i.e. the 'Ex-smokers are unstoppable' campaign etc.) and promoting smoking cessation services.

All these initiatives are also part of a broader EU engagement to reduce the consumption of tobacco worldwide in the context of the ***Framework Convention on Tobacco Control (FCTC).***[20] The FCTC was adopted in May 2003 and is the first ever international treaty on public health developed in response to the globalisation of tobacco consumption. The FCTC is an international treaty that needs to be implemented and enforced by all Parties having ratified the Convention, including the EU and its Member States, both having competence in certain areas of the FCTC and therefore requiring joint efforts towards its implementation. The FCTC is articulated along several articles with different levels of detail as to the concrete provisions for their implementation.

Various non-binding guidelines have also been adopted (by consensus) to assist the Parties in meeting their implementation obligations under the FCTC, covering both demand reduction provisions (such as price and tax measures, protection from exposure to tobacco smoke, content and disclosure of tobacco products, packaging and labelling, education and communication, advertising, promotion and sponsorship) and supply reduction provisions (such as illicit trade, sales to and by minors and support for economically viable alternative activities).

The scope of FCTC-related discussions has recently extended to 'electronic nicotine (or non-nicotine) delivery systems' (ENDS/ENNDS). The subject was discussed in the Conference of Parties of November 2016, and the Conference eventually adopted a WHO Report that underlined the lack of conclusive evidence on the role of these products in tobacco control and invited Parties to consider regulatory measures in line with national laws and public health objectives and monitor related developments.[21] The possibility of having the risks of ENDS more objectively risk-assessed by the WHO International Agency for Research on Cancer (IARC) – that specialises on evaluating the evidence of the carcinogenicity of specific exposures - has recently been proposed at the last FCTC

[20] See: http://www.who.int/fctc/en/
[21] WHO Report to FCTC COP (2016), http://www.who.int/fctc/cop/cop7/FCTC_COP7_9_EN.pdf?ua=1

plenary meeting in Geneva (the eighth conference of the parties or COP8, October 2018).

- **FIGHT AGAINST ILLICIT TRADE**

According to the estimates of the European Anti-Fraud Office (OLAF) the illicit trade in cigarettes causes annual financial losses of over EUR 10 billion (roughly equal to some 12.5% of the total) in the budgets of the EU Member States, in the form of unpaid customs duties, VAT, and excise duties.[22] By making cigarettes available at prices lower than those set to discourage smoking (and which additionally does not comply with product regulation), illicit trade is a major threat to tobacco control policies, as described above. Indeed, ***Articles 15 and 16 of the TPD2*** (and the following implementing acts adopted in 2017)[23] are specifically focussed on improving security standards and tracking and tracing methods for better monitoring of movements; similarly, the FCTC elaborated in 2013 a specific ***Protocol aimed at eliminating the illicit trade in tobacco*** that, once ratified, also envisages the establishment of a similar tracking and tracing system.[24]

In 2013, the Commission presented a comprehensive ***Strategy to step up the fight against the illicit tobacco trade***,[25] accompanied by a new ***Action Plan*** with 50 items to be implemented by the Commission and/or Member States.[26] The Strategy envisaged a mix of legislative and policy measures; a strengthening of enforcement authorities and inter-agency cooperation (OLAF, EUROPOL, FRONTEX, technical assistance facilities like the Hercule III programme etc.); specific law enforcement and intelligence actions (OLAF seizures operations, Joint Customs Operations, anti-fraud agreements with major tobacco manufacturers, customs laboratories support, data gathering etc.); and enhanced bilateral cooperation with major source and transit countries.

Although a full evaluation of the outcome of the Strategy has not been carried out yet (since various crucial components such as 'tracking and tracing' are not yet in place), the Report on its implementation of May 2017 concluded that: '*despite the measures taken since 2013, the challenge posed by the illicit tobacco trade remains as preoccupying today as it has been in the past*' and that '*the EU and its Member States have no choice but to continue to address the threat from illicit tobacco and its changing patterns with determination, since this illicit activity is detrimental to public health, finances and security*.'[27] In particular, there seems to be the need to intensify the fight against 'illicit whites'[28] and – of relevance to this Assignment – a reflection is specifically

[22] The estimation based on seizures (2005 and 2011), as reported in the Commission Communication 'Stepping up the fight against cigarette smuggling and other forms of illicit trade in tobacco products - A comprehensive EU Strategy', COM(2013) 324 final.
[23] Commission Implementing Regulation (EU) 2018/574 on technical standards for the establishment and operation of a traceability system for tobacco products; Commission Delegated Regulation (EU) 2018/573 on key elements of data storage contracts to be concluded as part of a traceability system for tobacco products; Commission Implementing Decision (EU) 2018/576 on technical standards for security features applied to tobacco products.
[24] See: http://www.who.int/fctc/protocol/about/en/
[25] COM(2013) 324 final
[26] SWD(2013) 193 final of 6 June 2013. It follows an earlier Action Plan to fight the smuggling of cigarettes and alcohol along the EU's eastern border (SEC(2011) 791 final of 24 June 2011).
[27] Progress report on the implementation of the Commission Communication "Stepping up the fight against cigarette smuggling and other forms of illicit trade in tobacco products - a comprehensive EU strategy (Com (2013) 324 final of 6.6.2013)", COM(2017) 235 final. The salient conclusions of the Report were taken up in the Council Conclusions *on stepping up the fight against illegally traded tobacco products in the EU*, issued in December 2017.
[28] Also known as 'cheap whites', these are cigarettes brands manufactured legitimately in one market, either taxed for local consumption or untaxed for export, and sold knowingly to traders who transport them to another country where the products are sold illegally without domestic duty paid. (Answers to the European parliament provided by former DG TAXUD Commissioner, Mr lgirdas Semeta, in 2011). According to

made on the incentives for smugglers deriving from price differentials. It is noted that a container holding some 20 million cigarettes smuggled into the EU can yield up to EUR 2 million in illegal revenue. It is therefore urged to pursue a certain degree of upward convergence between the tax levels applied in the Member States, to encourage neighbouring countries with a very low tax rate on tobacco products to progressively bridge the gap, with the average EU level excise duty rates. This requirement has been included also in the agreement established with non-EU partner countries, such as Ukraine and Moldova.

➢ PREVIOUS EVALUATIONS OF DIRECTIVE 2011/64

Directive 2011/64 has already undergone an evaluation process, which started in 2012 under the ***Regulatory Fitness and Performance Programme*** (REFIT). Within this context, an independent evaluation study was completed in 2014 by a consortium led by Ramboll Management Consulting (hereinafter 'Ramboll 2014'). On this basis, at the end of 2015 the Commission submitted a Report to the Council in 2015[29] and received in March 2016 the mandate to explore possible regulatory revisions.[30] Within this framework, an impact assessment study was conducted by *Economisti Associati* in 2016-2017, which was published in January 2018 (hereinafter 'EA 2018')[31] along with the ***Commission Report*** COM(2018) 17 final. In that report, the Commission explained the reasons why on certain issues a revision of the Directive was not required or premature at that moment in time. [32]

The Ramboll 2014 focused primarily on efficiency and effectiveness aspects of the excise duty structures laid down in the Directive, and identified a series of possible issues that were further examined under the EA 2018, with a view to establish whether an amendment of the Directive was required (see Box 1.4). The ***minimum rates*** were not at stake in both exercises since they were too recently introduced, but it is worth noting that the point had been raised already at the ECOFIN Council of March 2016, and upon requests from some MS an Appendix was added to the Conclusions stating '*the need to achieve a closer convergence of excise duty applied to manufactured tobacco towards the highest common denominator*' and inviting the Commission '*to start work on a future revision of the minimum rates without delay*'.[33]

In its Report 2018 the Commission noted among other things:

- There is a general lack of data on e-cigarettes and heated tobacco products to underpin a proposal for harmonised taxation. However, the Commission expressed the intention to re-considered the matter in the context of the current new evaluation process, taking advantage of new information possibly stemming from the Tobacco Products Directive reporting obligations under Art. 20.[34]
- Some issues identified in the Ramboll 2014 have since been solved at national level or have been settled, so an intervention is no longer need.

INTERPOL, illicit whites are known to be manufactured in Belarus, Vietnam, Indonesia, Philippines, India, Cambodia, Paraguay, Ukraine, Russia, UAE, Kenya and a number of Free Trade Zones (FTZs).

[29] COM(2015) 621, Report from the Commission to the Council on the REFIT evaluation of Directive 2011/64/EU and on the structure and rates of excise duty applied to manufactured tobacco, 2015.

[30] "Council conclusions on the structure and rates of excise duty applied to manufactured tobacco", 08.03.2016

[31] See: https://ec.europa.eu/taxation_customs/sites/taxation/files/study_on_directive-2011_64_main_text_en.pdf

[32] COM(2018) 17 final, Report from the Commission to the Council on Directive 2011/64/EU on the structure and rates of excise duty applied to manufactured tobacco.

[33] Council Conclusions, 2016.

[34] Directive 2014/40/EU of 3 April 2014 on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco and related products and repealing Directive 2001/37/EC

- The new statutory evaluation of the Directive (in accordance with Art. 19) shall include (primarily) a review of the minimum rates level established in the Directive itself.

Box 1.4 – Summary of results from previous evaluation and impact assessment reports

Ramboll 2014. With respect to the possible effects of the Directive on the functioning of the internal market – and specifically on the conditions of competition and the free setting of prices - the conclusions of Ramboll 2014 were mixed. All in all, the structure of excise duty applied was considered neutral enough for internal market purposes. On the other hand, some possible distortions were detected with a series of specific issues, i.e.: the differentiated application of the MED, the inconsistent treatment of e-cigarettes and certain manufactured tobacco products, and the tax induced substitution between and within product groups.

As regards efficiency, Ramboll 2014 identified a few sources of unnecessary administrative and compliance costs for tax administrations and economic operators. Firstly, certain definitions seemed too subjective or unclear, potentially causing legal uncertainty over the treatment of specific products. Secondly, the application of different definitions of tobacco products for excise duty and for customs purposes may also fuel legal uncertainty and results in a double-entry work especially burdensome for SME.

On effectiveness, Ramboll 2014 concluded that, with few exceptions, the Directive has proven successful in enabling an adequate collection of excise duties for the large majority of manufactured tobacco products.

EA 2018. The EA 2018 started from the conclusions of Ramboll 2014, with the objectives of assessing the magnitude of the issues highlighted and their likely evolution, in the absence of a policy intervention, and of developing and analysing possible options for policy change. The scope of the EA 2018 included in particular: (i) the introduction of new tax categories for new products and raw tobacco; (ii) the effectiveness of current tax categories and definitions for FCT and cigar & cigarillos to prevent tax-induced substitution, and the possible need to revise the tax regime of water-pipe tobacco to better tackle tax frauds; (iii) possible clarifications of the legal text on MED.

The EA 2018 concluded that the functioning of the market of conventional tobacco products does not present critical issues requiring a revision of the Directive's excise duty definitions and structures, since:

- tax-induced substitution problems have been largely addressed at MS level modulating the tools offered by the Directive;
- there are no major persisting or emerging threats to tax revenue stability or tobacco control policies, and
- heavier measures for cigarillos or FCT may yield modest benefits but would severely hit SME competitiveness against big tobacco companies.

It was also confirmed that illicit manufacturing and trade of certain products may affect tax revenues but tax regulation may not be decisive and/or the most efficient option to tackle the issue. In particular, extending EMCS to raw tobacco may facilitate control, but would not solve the problem of diversion to the illicit, and may unintendedly harm EU-grown tobacco; while water-pipe tobacco requires in the first place closer monitoring and control over the value-chain (a separate tax category may help but the proportionality of this intervention is dubious).

Some classification issues and legal uncertainties were confirmed, but at the time of the analysis the adverse effects that resulted were limited, and not justifying a regulatory revision. In particular: an operational definition of tobacco refuse for retail or bulk seems needed; a clarification of the conditions for setting MED above 100% of excise duty on WAP seems useful; and the disparities in the definition of cigarillos under CN and excise product classification could be addressed. The EA 2018 also noted the possible uncertainties deriving from the definition of 'smoking tobacco' laid down under Art. 5.1, but the matter was not causing any major administrative issue or market disruption. However, more recently, following the CJEU ruling on the *Eko-tabak* case (C-638/15, April 2017), a few countries have adopted stricter classification criteria for 'smoking tobacco' that are reportedly creating obstacles to the intra-EU trade of raw

and semi-processed tobacco, and may require to reconsider the current definition and classification criteria.

Finally, the EA 2018 dealt with novel products, namely e-cigarettes and heated tobacco products, concluding that the functioning of the market is hampered by the lack of harmonisation and that the expected market growth and diversification may eventually worsen legal and administrative issues and tax losses. At the same time, the results highlighted the need for more robust data on market and consumption and for evidence of 'market failures' before undertaking fiscal harmonisation. The risks of disproportionate effects on SME, and of creating incentive for illicit trade and 'borderline' products, were also highlighted.

2. EVALUATION FRAMEWORK AND METHODOLOGY

2.1 Overview

This Section describes the approach and methodology developed by the Consultant to undertake the tasks required by the Assignment. It describes the evaluation framework, the data gathering activities carried out and the sources of information used, the analytical work conducted (including an outline of the econometric analysis) and the approach to the impact analysis that has been performed in the last phase of the Assignment.

The text is structured as follows:

- ***Section 2.2*** summarises the rationale and purpose of the Assignment and develops the evaluation framework, including the evaluation questions and the salient features of the proposed approach (detailed evaluation matrices are provided in Volume 3).
- ***Section 2.3*** deals with the methods and tools used to collect and analyse data and information, including the quantitative models developed to this end.
- ***Section 2.4*** outlines the approach and methodology for the 'forward-looking' component of the Assignment.

2.2 The evaluation framework

2.2.1 Aim and tasks of the Assignment

➢ **PURPOSE AND SCOPE OF THE WORK**

The main purpose of the Study is to contribute to the periodical Report on the Directive that the Commission shall submit to the Council every four years, in accordance with Article 19.1. Such Report should focus on the '*proper functioning of the internal market, the real value of the excise duty*', and the achievement of the broader policy objectives of the Directive and may include, where relevant, a proposal for revision of the current rates and structures.[35] In this respect, the Study intends ***to provide robust and comprehensive evidence for the evaluation of the Directive and the related impact analysis of possible revisions***.

As the Terms of Reference (ToR) clarify, the Study should focus mainly on ***the minimum rates*** set in the Directive and on how they have responded and currently respond to the evolving policy needs. The previous Evaluation ('Ramboll 2014'), and the following impact assessment Study prepared by *Economisti Associati* ('EA 2018') did not address minimum rates since it was too early to draw any meaningful conclusion: many MS had not taken them up yet due to transitional periods, and the planned staged increases had not taken place. Conversely, the ***excise duty structures*** laid down in the Directive have been examined thoroughly so – although it forms an integral part of the analysis – it represents a comparatively minor priority in the current Study, especially where the results of the previous works appear as still valid. At the same time, as the intervention logic shows (Figure 1.1), the effects of excise duty structures and rates are often entangled and in practice a totally separated analysis of these two policy items is not feasible.

[35] Directive 2011/64/EU, Art 19.1.

Additionally, the ToR requires analysing and reporting developments in ***the market for novel products***, i.e. e-cigarettes and heated tobacco products.[36] These were the subject of a major case-study under EA 2018, the first of its kind assessing the market of new products in the EU from a fiscal perspective. As this market is rapidly evolving, due not only to demand and supply dynamics (technological development, changing consumption patterns, new players etc.), but also to changing regulatory and tax frameworks (implementation of the TPD2, national non-harmonised rules and tax regimes, international classification of products etc.), it is important to keep track of these evolving trends from an EU policy viewpoint and to provide updated evidence to decision-makers on the risks and the benefits of harmonising the excise duty regime for these products.

To sum up, the ***thematic scope*** of the report requested services embraces both the rates and structures of manufactured tobacco products currently covered by the Directive (in accordance with the requirements of Article 19.1) as well as novel products not currently harmonised (to respond to broader policy challenges and strategic needs). In geographical terms, the exercise analyses how the situation has evolved in all EU Member States from a high-level perspective.

- **COMPONENTS AND TASKS OF THE ASSIGNMENT**

As indicated in the ToR the Assignment consists of a retrospective component and a forward-looking component that are being developed 'back-to-back'.[37] In particular:

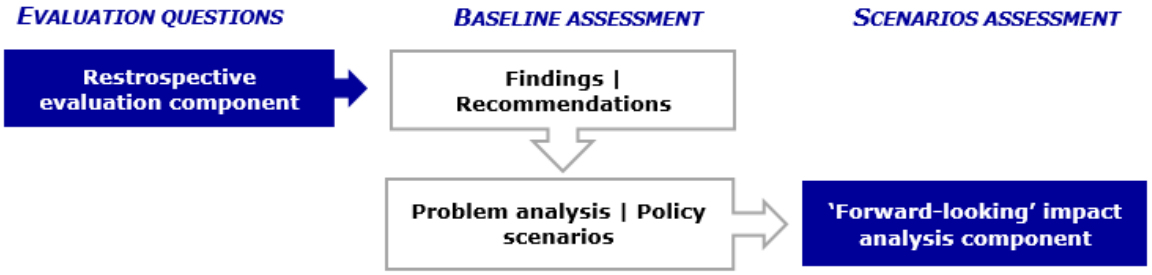
- the ***retrospective 'evaluative' component*** regards how the Directive rules and provisions performed against the initial objectives and expectations, and whether the overall policy is still 'fit for purpose' in broad sense. This dimension of the Study is articulated in a set of '***evaluation questions***' which must be answered through an agreed set of judgment criteria, based on relevant indicators, collected through appropriate methods and from valid sources (the 'evaluation matrix' – see Volume 3).
- the ***forward-looking component*** should be developed in the form of an ***impact analysis study***, consisting of a problem analysis, the elaboration of possible policy scenarios to address the problems identified, the assessment of the likely impact of both the policy change and 'no change' scenarios, and their comparison.

The link between the two components of the Assignments is depicted in Figure 2.1 below. In practice, the findings of the retrospective evaluation will inform the problem analysis at the basis of the impact analysis component, and the typical 'recommendations' will actually take the form of policy scenarios for the revision of the Directive. On a descriptive level, the two components have in common the 'baseline situation', which for the evaluative component is necessary to compare planned v. actual results, whereas for the 'forward-looking' component describes the starting point of the policy scenarios.

[36] In this Report, the term 'novel products' is used to collectively refer to e-cigarettes and heated tobacco products. This is a purely operational label intended to designate electronically-enabled vapour products that are not (explicitly) covered by Directive 2011/64. It should not be confounded with the 'novel tobacco products' category defined under Art. 2(14) of TPD2, which does not contain 'electronic cigarettes' and related 'refill containers', and comprises all tobacco products placed on the market after 19 May 2014 which are not falling under the existing smoking and smokeless products definitions (therefore including heated tobacco products).

[37] See: Tool #52 of the Better Regulation 'Toolbox'. https://ec.europa.eu/info/better-regulation-toolbox_en

Figure 2.1 – The two main components of the Assignment



In other words, the Assignment contains at the same time an evaluative aim (especially the retrospective dimension), a normative aim (especially the forward-looking dimension), and a descriptive aim, which consists in gathering and reporting evidence on the reality of markets, national policy frameworks, consumers' behaviours and other 'hard facts' that may be useful to policy-makers to steer the debate and take informed decisions.

The scheme applies to all thematic areas (every problem detected will require the identification of an appropriate solution), but with different emphasis. For instance, novel products are of limited relevance for the retrospective component (they were not included in the Directive), while they are important in the forward-looking perspective. Instead, the minimum rates have never been evaluated, so a robust retrospective analysis is essential also to support future revisions. The case of structures is peculiar, since they have been already evaluated and submitted to impact analysis. Therefore, the retrospective analysis of structures actually focuses on the interim evaluative dimension ("are today's structures still fit for purpose?"), while the forward-looking dimension partly integrates previous findings (EA 2018) and partly develops new options, but only for problems not previously assessed.

2.2.2 Evaluation questions

The evaluative component of the Assignment is centred on a set of ***evaluation questions***, connected to broader evaluation criteria, in accordance with the *Better Regulation* guidelines. The focus of questions may vary: some have a clear backward-looking scope narrowly targeted on the specific provisions introduced in the most recent version of the Directive (e.g. the effectiveness of minimum rates in delivering the expected impacts), while others seem more oriented to formulate broad judgment on the current situation, which may eventually inform future decisions (e.g. whether the early objectives and arrangements are still fit for the current reality of the tobacco market). The responses to the latter questions *de facto* constitute the problem analysis and the basis for the formulation of policy scenarios for change. We have highlighted such correspondences in the review of evaluation questions that follows.

According to the ToR, novel products are not formally covered by evaluation questions and shall be assessed separately. However, some of the issues raised in the evaluation questions are in fact pertinent also to novel products. This is the case for instance of the questions on relevance and coherence of the current rules, which may imply questions on the need to add novel products to the list of harmonised excise goods. For this reason, in the inception phase, specific references to novel products have been added to the list of evaluation questions list.

Table 2.1 below spells out the evaluation questions of the Assignment (organised by corresponding evaluation criteria). As compared to ToR, some questions have been further articulated to specify their focus and to include relevant side aspects.

Table 2.1 – The evaluation questions

Evaluation questions	Evaluation criterion
1. What is the current situation (background, legal framework context and objectives)? How has the situation (rates and structures of excise duty applied to manufactured tobacco) evolved since Directive 2011/64/EU entered into force. 2. How are the rates and structures implemented by MS? How has the price of tobacco products evolved in relation to taxation? What were the general trends in market size and the amount of tax receipts collected by MS? 3. How has the demand / market size evolved, considering also cross-product substitution and 'unrecorded tobacco consumption'? How has overall smoking prevalence evolved? 4. How has the regulation of new products evolved in MS? How has demand / market size evolved?	***N/A (descriptive question)***
5. Are the rates and structures of excise duty applied to manufactured tobacco coherent with other EU policies and international obligations?	**Coherence**
6. Do the current minimum rates and structures still correspond to the objectives of the Directive? 7. Do they correspond to the needs of the national tax administrations, ministries of health and subsequently of other stakeholders (economic operators, NGO's and citizens)? 8. Is there a need for separate harmonised tax categories and definitions for new products?	**Relevance**
9. To what extent have the current minimum rates helped and supported in ensuring the proper functioning of the internal market (including competition)? a) Has the gap between the lowest and highest taxing Member States decreased? Were 'low-taxing' Member States forced to increase their rates due to the obligations of Directive 2011/64/EU? b) To what extent price levels and differentials between MS were influenced by taxation? c) To what extent the differential of tax levels has enhanced substitution between cigarettes and FCT? d) What were the estimated overall effects of these trends on tax revenues? e) What is the estimated impact of tax-induced trends on market value / employment in this sector, in particular on SMEs? 10. To what extent have the current minimum rates helped and supported in fighting against tax fraud, tax evasion and illegal cross-border shopping? a) To what extent price difference between MS caused cross-border trade of duty-paid products? b) How has the share of illicit products consumed evolved in relation to tax and price levels in MS? c) What is the amount of tax losses for MS due to unrecorded tobacco consumption and how has it evolved? 11. To what extent have the current minimum rates helped and supported in provide a high level of health protection? a) How have the accessibility price and overall affordability of tobacco evolved? b) To what extent smoking prevalence have decreased in relation to minimum rates increase (and considering substitution)? c) To what extent substitution with new products is affecting smoking prevalence? d) What are the estimated public health impacts attributable to the observed reduction of prevalence?	**Effectiveness**
12. What is the additional value of the minimum rates and structures of Directive 2011/64/EU, compared to what could have been expected from Member States acting on national level? 13. Is EU intervention in this area still justified? Are there needs and priorities (e.g. concerning new products) that the current policy framework does not address? Can they be effectively solved by MS without any EU-level intervention?	**EU added value**
14. To what extent are the current rates and their structure cost effective in achieving the desired results? Would it be possible to achieve the same results (benefits) at less costs? 15. Is there potential to reduce inefficiencies or simplify the rates and structures of excise duty applied to manufactured tobacco without undermining the intended objectives? 16. What would be the regulatory costs / cost savings (administrative, compliance and enforcement costs) of introducing new tax categories for new products? How do they compare to benefits?	**Efficiency**

Source: *Author's elaboration of the Terms of Reference (p.6)*
Notes: *Some questions, in blue colour, were originally in the ToR but have been moved across evaluation criteria for a clearer 'logical flows' and to avoid possible repetitions. Other questions, in dark red colour, have been added for the purpose of a more detailed articulation and understanding of the actual issues at stake.*

The approach to the above evaluation questions has been developed by means of ***evaluation matrices*** (see Volume 3) that spell out for each question the following element:

- ***judgment criteria*** (or 'success' criteria), i.e. the main dimensions examined in order to respond to the evaluation questions;
- objectively measurable ***indicators*** connected to the judgment criteria (both of quantitative and qualitative nature, for a proper 'triangulation' of evidence);
- ***sources of information***, i.e. the datasets, fact finding tools and main analytical methods envisaged to measure the above indicators.

2.2.3 Baseline and benchmarks

As shown in Section 1.2 above, EU-level harmonised rules on the excise duty applicable to manufactured tobacco have been in place since the 1970s. For evaluation purposes, it is important to consider the origin of the rules and provisions of the Directive and to distinguish 'legacy' measures from more recent ones. As Directive 2011/64 essentially codified the previous Directive 2010/12 the relevant differences are actually between the latter and earlier versions.

For the provisions introduced with Directive 2010/12 - then Directive 2011/64 – the focus of the evaluation should be to assess how well they have achieved the intended objectives and the underlying factors. This encompasses various dimensions of analysis, i.e. how well they have been implemented, the impacts produced, whether such results have been in line with the planned targets, what would have happened without such revisions, etc. This can be considered the 'core' of the evaluation exercise, since it would measure retrospectively the 'incremental' effects of the current Directive against a baseline scenario that is not the absence of EU policy but the EU policy in force prior to 2010.

At the same time, it is important to establish whether the current legal framework on the whole is still fit for purpose, i.e. whether needs and priorities are met, whether the fiscal policy is still aligned with other related policy frameworks and goals (e.g. tobacco control policies, anti-fraud policies etc.), whether there are emerging issues not (sufficiently) addressed in the legal text currently in force. This dimension clearly transcends the specific revisions introduced in 2010 and calls into question the overall fitness of the current EU framework especially in an 'interim' or 'forward-looking' perspective. This dimension includes, for instance, the issue of novel products harmonisation.

In the design of the general evaluation framework, the above distinction has three main implications concerning: (i) evaluation criteria addressed; (ii) benchmarks, targets and reference for measurement; and (iii) appropriate time-dimension, as summarised in Table 2.2 below. It can be useful to underline that this scheme applies to the 'evaluative' component of the Assignment but not necessarily to the 'impact analysis' component.

Table 2.2 – Evaluation 'focus' and the features of the evaluation framework design

	Specific provisions introduced with Directive 2010/12 (then Directive 2011/64)	Overall EU excise legislation on manufactured tobacco
Evaluation criteria	***Effectiveness*** and ***EU added value*** are the main criteria. ***Efficiency*** is also pertinent as concerns the overall costs / benefits balance.	***Relevance*** and ***Coherence*** of the current framework are the main criteria. ***Efficiency*** is also pertinent as far as regulatory costs / costs savings are concerned.
Time-dimension of the evaluation	Essentially ***retrospective*** (before/after), taking into account how the situation could have evolved if no change was introduced in 2010 (and later, with e.g. staged increase of rates, phasing out of derogations etc.).	Essentially '***interim***' (the current situation) and oriented to the future evolution.
Benchmarks, targets	The Directive was accompanied by an ***impact assessment***[38] describing the expected effects of the proposed amendments, which contain a set of benchmarks useful to compare the planned v. actual results achieved. In some cases, the targets are not explicit / measured and have to be reconstructed (qualitatively).	***No long-term or general targets*** are laid down in the Directive, so they shall be inferred based on (i) complementary policies and regulations (e.g. public health); or (ii) institutional stakeholders' expectations (qualitatively).

2.2.4 Impact chain logic model

The intervention logic depicted in Figure 1.1 (Section 1.2) described the hierarchy of objectives of the Directive but did not detail how concretely inputs may contribute to such objectives, in the light of the multiple factors that can influence such outcome. So, we have developed a 'logic model' to guide the analysis, in the form of a causal chain of impacts. This scheme was primarily useful for the design of the quantitative model of the Study, but it also helped to develop the 'theory-based' qualitative analysis, i.e. of factors that cannot be quantified precisely. The scheme is deemed valid for both the retrospective and the 'forward-looking' analysis. The impact chain consists of five main steps, as follows:

- ***Step #1*** - The Directive sets excise duty structures and minimum rates modulated across different product categories, as well as optional measures (e.g. the MED) and derogations. Parameters and levels have varied overtime.
- ***Step #2*** – Within the boundaries established by the Directive, MS still have much freedom to set actual rates, and excise duty structure parameters based on their market specificities and policy targets (as well as international obligations undertaken etc.). In fact, only a minority of MS were required to revise their rates and structures to comply with EU rules, and such impact was further mediated by a transitional period and various derogations. On the other hand, all MS are indirectly influenced in their fiscal policies by the tax treatment in force in the other MS, since disparities are a possible cause of cross-border shopping.
- ***Step #3*** – Price levels are influenced by taxes but also by a number of other factors such as, evidently, production / distribution costs, competition and manufacturers' strategies, other costs due to domestic or EU regulation (e.g. TPD2) etc. In this sense, the pass-through rates may vary across different geographical markets and by type and segment of product.
- ***Step #4*** - Consumers are to a various extent sensitive to price levels in their purchasing decision, and this is commonly measured through the price elasticity of the demand. However, this elasticity may vary across markets, products and socio-economic groups (e.g. young people are more sensitive to price increases). Furthermore, the impact on the demand may differ if the price variation is rapid or slow, and in relation to income level variation ('affordability'). Additionally, other factors may influence demand for cigarettes, such as the price and availability of substitute products (FCT, cigarillos, but also 'novel products'), of 'non-domestic'

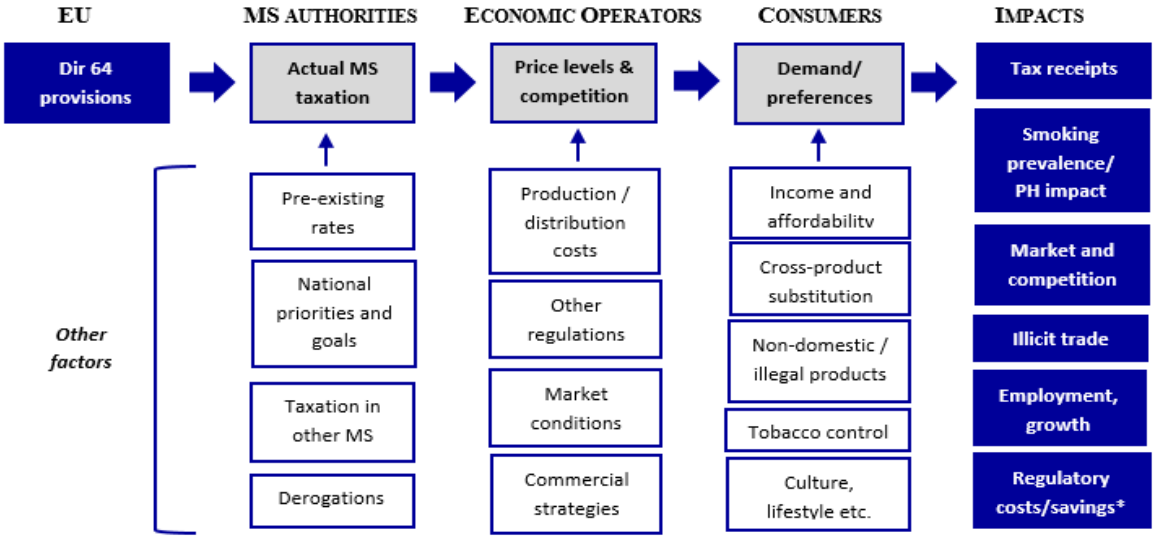
[38] SEC(2008) 2266

products and illicit products). Finally, the effects of tobacco control measures and general cultural / lifestyle trends should also be considered.[39]

- ***Step #5*** – In addition to the overarching objectives explicitly targeted - i.e. ensuring the functioning of the internal market and protecting health – the Directive provisions may ultimately impact on MS tax receipts, illicit trade flows, employment (indirect 'value-chain' effects). For comprehensiveness purposes, also regulatory costs/cost savings (like administrative, compliance and enforcement costs) should be mentioned among the possible effects of the Directive, although they are not ultimate impacts in the sense shown in Figure 2.2 below.

The complexity and the length of the impact chain described above may evidently affect the precision and reliability of the impact analysis, both for the difficulty of measuring objectively certain interfering factors (e.g. manufacturers' price strategies, effectiveness of tobacco control policies and anti-fraud policies etc.), as well as for the uncertainties that exists with the panel data that fed into the analysis (e.g. illicit trade data, smoking prevalence, novel products market data etc.). It is therefore necessary to use also qualitative information from the stakeholders' consultation and other desk sources (including the existing literature) to fill information gaps and to validate the results of the quantitative analysis. We have explicitly reported all instances where data did not allow to develop statistically-robust findings.

Figure 2.2 – The impact chain logic model



Source: *Author's elaboration.*
Note: *(*) Regulatory costs and savings, like administrative, compliance and enforcement costs and cost savings, emerge early on in the impact chain and namely at the stage of step #2 (for MS administrations) and step #3 (for economic operators).*

[39] For instance, as mentioned below some epidemiologists maintain the EU is on the decreasing phase of the cigarette epidemics when consumption naturally declines as long as cigarette smoking increasingly become a de-normalised behaviour perceived as at odds with prevailing practices. See Lopez AD, Collishaw NE, Piha T. *A descriptive model of the cigarette epidemic in developed countries.* Tobacco Control. 1994;3(3):242-247.

2.3 Methodology and tools

2.3.1 Consultation of stakeholders

The consultation strategy has been designed to address comprehensively the different stakeholders' groups by means of tailored tools and questionnaires. In particular, the following activities were carried out:

- ***Targeted consultation of Member States authorities***, further subdivided into two separate questionnaires addressing respectively:
  (i) Tax and customs authorities. Total respondents: 24 Member States.
  (ii) Public health authorities. Total respondents: 15 Member States.
- ***Open Public Consultation*** online, addressing all interested parties, including economic operators, non-governmental organisations, academics, and individual citizens of the EU and third-countries. Total respondents: 11,388 from 28 MS.[40]
- ***In-depth interviews*** with selected stakeholders, including tax, customs and public health authorities, economic operators and trade organisations representing both the conventional tobacco products and novel products such as e-cigarettes and heated tobacco products. Total interviewees: 52 from 43 different entities.
- ***Email consultation of e-cigarettes stakeholders,*** to complement and expand the above interview programme, and including trade organisations, consumers associations, businesses and consumers. Total respondents: 52 from 10 countries.
- ***Attendance to international conference and events*** concerning tobacco control and public health policies or fight against illicit trade of tobacco. Total events: 4 (Spain, Bulgaria, Belgium and the UK).

Altogether, the consultations allowed to gather relevant information of four main kinds:

(1) factual information on the legal and operating framework in the Member States, as well as on the situation and dynamics of the corresponding national markets;
(2) evaluative information on the performance of the current legislation and the perceived existing issues;
(3) predictive statements on the possible future evolution of legal frameworks and markets under different scenarios;
(4) normative statements on stakeholders' expectations and preferences among different policy options.

The following sub-sections describe in greater details the salient features of the activities carried out.

➢ OPEN PUBLIC CONSULTATION

The Open Public Consultation (OPC) was intended to gather the views of any interested party – from economic operators, to non-government organisations (NGOs), to individual citizens etc. on two main issues:

(1) The current taxation of conventional tobacco products (cigarettes, cigars and cigarillos, and smoking tobacco) and specifically the level of rates and structures;
(2) The status of novel products, i.e. 'electronic cigarettes' and 'heated tobacco products', which are not explicitly covered by the Directive.

[40] The total records received amounted to 11,410 but 22 records appeared as duplicate submissions from the same entity so were excluded from the analysis. Possible duplicate submissions from individual citizens were instead not excluded given the possibility of homonyms.

The OPC was carried out through an online questionnaire translated in all EU official languages (except Gaelic) and administered through the EU Survey platform. The OPC was launched on the 23rd of May and closed on the 3rd of September 2018.

The questionnaire consisted of 26 questions, including both general questions and more technical ones. None of the question was mandatory, so respondents could focus on certain sections of the questionnaire and skip others, based on their knowledge and interest. On average, respondents replied to some 77% of the questionnaire, with some questions answered by 99% of respondents while others by 'only' 65% of them.[41]

Overall, the OPC received 11,388 valid responses[42], of which the vast majority (96%) from citizens responding on an individual capacity and some 4% from representatives of industry, NGOs, public administrations, academic institutions and other corporate entities. The high rate of response among individual citizens is primarily due to the massive participation of e-cigarettes consumers. Some half of non-individual respondents are economic operators, including both businesses operating in the e-cigarettes sector and in the 'conventional' tobacco products sector. The sub-sample of economic operators includes both large companies (11%), SMEs (68%), and self-employed entrepreneurs (21%). It should be highlighted that some national affiliates to large corporations self-classified themselves as SMEs. If all such entities were classified as their parent companies, the share of SME in the sample would reduce to 58%. As regards the other categories of respondents, some 0.8% qualified themselves as business organisations or advisory body, 0.5% as NGOs, some 0.1% as public administrations[43] and the remaining 0.6% as other miscellaneous entities.

Nearly 93% of answers come from EU-based respondents, some 2% from non-EU countries, while for the remainder the origin is not specified. All EU countries are represented in the respondents' sample, but the distribution is skewed, with three Member States (DE, ES and FR) accounting for 66% of total responses. However, considering only responses from non-individual entities the distribution is significantly more balanced and coherent with MS size.

- **TARGETED CONSULTATION OF MS AUTHORITIES**

To complement the above OPC, the Consultant has developed and implemented a parallel in-depth questionnaire survey targeting more specifically the competent authorities of the MS. The thematic areas covered were similar to OPC's but examined from the specific viewpoints of MS policy-makers and administrative authorities. In particular, the following dimensions were investigated:

- A general assessment of the current situation and trend with respect to selected policy problems, like unrecorded tobacco consumption, tax-induced substitution across products, insufficient reduction of smoking prevalence, instability in domestic market (e.g. 'price wars'), tax revenue losses, legal uncertainties and administrative issues due to current rules and provisions;
- the relevance of the objectives of the Directive and their alignment with national objectives (past and current), as well as its broad coherence with other policy

[41] These figures do not include introductory questions (regarding the profile of respondents) and open-ended questions.
[42] The total replies received amounted to 11,410 but 22 records appeared as duplicate submissions from the same entity so were excluded from the analysis. Possible duplicate submissions from individual citizens were instead not excluded given the possibility of homonyms.
[43] The apparent low rate of responses from public administration should be seen in the light of the fact that tax, customs and public health authorities of the Member States were surveyed in parallel through an *ad hoc* and more detailed consultation. Nearly all administrations who took part to the OPC were in fact local administrations.

framework and commitments (e.g. in the field of tobacco control and anti-fraud policies);
- the extent to which the Directive performances have met expectations, as concerns: proper market functioning, public health protection targets, control of cross-border flows and illicit trade, stability and predictability of tax revenues. This includes factual evidence on the impact of Directive's provisions on national tax regimes and markets includes perceptions on the importance of the underlying drivers;
- the possible EU added value of Directive minima (and other provisions) against a hypothetical 'counterfactual scenario', where the Directive was not in place and MS were entirely free to set their excise duty levels and structures, as well as the perceived justification for EU continuous intervention in this policy area;
- the perceived efficiency of the Directive provisions in reconciling different objectives and optimising results;
- any existing unnecessary regulatory burden (of administrative or enforcement type) caused by the Directive, which can be eliminated through simplification or better legal clarity;
- current and future expectations and needs with respect to EU minima, new products and other regulatory aspects, and the related anticipated effects of revisions on country's policies and market trends;
- state of the market and regulation of novel products, key challenges and expected trends, as well as perceived benefits and risks of harmonisation, and preferred options.

Two separate questionnaires have been prepared for this consultation: one addressed to tax authorities and administrations, and the other addressed public health authorities. The two questionnaires have been implemented with different arrangements:

1. The questionnaire for ***tax authorities*** has been codified and uploaded by the Consultant on a proprietary platform and after establishing a secure https address to this end. To facilitate the completion some useful practical features have been added:
    - Every respondent-authority received a customised web-link to the survey. This system facilitated collaborative completion of the questionnaire: each service involved could access the questionnaire through the shared weblink provided and complete the sections falling under their specific area of responsibility.
    - The questionnaire was structured into 10 thematic sections that could be completed independently and flexibly.
    - Respondents could print their answers at any time during completion and after the final submission.
    - In addition to the online version, a MS-word version was distributed via email to MS authorities, to give them the choice to complete it offline, if so preferred. The offline version could also be downloaded from the landing page of the online version.

    The questionnaire was distributed primarily among the members of DG TAXUD Indirect Tax Expert Group (ITEG), which gather officials form MS ministries of finance and tax and customs authorities that are competent for excise duty policy and administrations. Given the vast scope of the consultations, respondents were invited to involve all other services competent for the subject matter.

2. The questionnaire for ***public health authorities*** was delivered to DG SANTE who distributed it among the members of its institutional group of experts on tobacco policy. This arrangement was adopted to maintain the confidentiality of the contact details of Expert Group's members vis-à-vis the Consultant. Since for some MS the Expert Group representatives are not from the ministry of health, or from a public

health authority, the survey recipients were invited to further distribute the questionnaire to other potentially interested parties. In this sense, the possibility of receiving more than one questionnaire per MS was envisaged. For these two reasons it was not technically feasible to set up an online version as for the other targeted questionnaire, so this one was distributed only offline via email.

Both consultations were launched the week of May, 21st, almost simultaneously with the OPC. The end date was provisionally set on June, 25th but upon request from various respondents, it was further extended to July, 9th. Actually, late answers were received until the end of September. A total of 24 responses were received from tax authorities and 15 from public health authorities.

- **INTERVIEWS AND OTHER STAKEHOLDERS CONSULTATION ACTIVITIES**

In addition to the above written consultation, ***in-depth interview*** with selected stakeholders at both EU and MS levels have been conducted. The interview programme has involved informants from all stakeholders' groups, and in particular: (i) European Commission competent services (DG TAXUD, DG SANTE, OLAF), (ii) MS tax, customs and public health authorities; (iii) industry organisations and trade associations; (iv) representative of the Big Tobacco manufacturers; (v) representatives of the independent' electronic cigarette industry; and (vi) public health NGOs and authorities.

In-depth interviews were qualitative and semi-structured[44], so rather than on standard questionnaire they were rather based on *ad hoc* checklist of themes for discussion which were often sent in advance to the interviewees so that they had time to reflect on the topics proposed.

All in-depth interviews have been conducted by senior Team members. Interviews generally lasted from 60 to 120 minutes (up to 180 minutes in some cases) and were mostly conducted face-to-face, with only minor recourse to teleconference. Interviews were conducted partly in the inception phase (to structure the work), partly during the data gathering phase (for 'fact finding') and partly in the final phase of the Study, to 'cross-check' findings and have a closer focus on the forward-looking dimension. In various instances some entities where met more than once in the course of the Assignment. The interview programme involved an overall 52 interviewees from 43 entities. In-depth interviews have been carried out under the standard confidentiality arrangements: no minutes or summaries of the discussions have been circulated outside the core team, and the information collected has been reported in such a way that the identity of informants is not disclosed. Stakeholders wishing to have their position publicly disclosed were directed toward attaching position papers to the Open Public Consultation (see above).

In order to obtained more detailed and factual information on the current state of the market and demand of e-cigarettes in the Member States - and given the absence at the time of the research of suitable data from the TPD2 notification and reporting process - the consultation of ***e-cigarettes stakeholders*** has been conducted primarily in the form of a structured collection of data from direct concerned stakeholders (i.e. trade associations, economic operators, users associations), complemented by some semi-structured interviews. The consultation has been carried out by means of short questionnaires tailored on three types of respondents: (1) trade associations; (2) businesses; and (3) consumer associations. Furthermore, slightly adjusted questionnaires have been prepared for stakeholders in e-cigarettes taxing or non-taxing countries. The questionnaires contained primarily factual questions and in this respect

[44] With the partial exception of e-cigarette stakeholders who will be prevalently consulted through a structured questionnaire.

the survey was complementary and not overlapping with the OPC, where such questions could not be included.

Finally, it should be briefly mentioned the participation of the Consultant at ***international conferences and events*** dedicated to tobacco control and/or the issue of illicit trade of tobacco. These events proved particularly useful not only for gathering state-of-art information on the research and the initiatives being adopted by the relevant authorities and stakeholders, but also to meet and discuss with high-profile experts both collectively (round table discussions) or individually (interviews on the side-line of the events). In particular the events attended include:

- The Smoke Free Partnership (SFP) High Level Roundtable on *Tobacco Taxation and Illicit Trade of Tobacco Products* that was held in Sofia on the 25th and 26th of April that saw the participation of some of the leading public health experts in the field of tobacco taxation and where the SFP position paper on the revision of Directive 2011/64 was presented and extensively discussed;
- The annual conference of the European Network for Smoking and Tobacco Prevention (ENSP) on Tobacco Control held in Madrid from June 14th to June 16th jointly organised with the Spanish CNPT and that had among others a specific session devoted to Taxation, Illicit Trade and the Revision of the EU Directive and where the latest results of some of the major EU-funded studies on the tobacco epidemics in Europe were also presented, particularly with updates on waterpipe tobacco.
- The OLAF *Conference on Illicit Tobacco Trade*, which took place on March 23, at the European Economic and Social Committee (EESC). The perspective on illicit tobacco trade was given by the number of speakers representing national Tax and Customs Authorities, representatives of international organizations and public health institutes.
- The Oxford Economics' roundtable *Combating Illicit Trade: What influences customer behaviours?* was held on June 26 in London. The event featured the findings of a large-scale study conducted on 37 European countries and polling over 45,000 consumers on the factors that motivate consumers to engage in illicit activity and the strategies that can alter their behaviour. As one of the product categories, the research covered cigarettes and tobacco.

Table 2.3 – Typology of stakeholders' interviews/consulted

Respondent	Number
Public authorities	**8**
Tax/customs authorities	5
Public Health authorities	3
Industry and trade associations	**44**
Tobacco manufacturers / associations	12
Novel products operators / associations	22+10*
NGOs	**29**
Public Health NGOs	5
Consumers / associations	23+1*
European Commission	**4**
Others (e.g. experts etc.)	**10**
Total	**95**

(*) collective organisations

2.3.2 Data collection and analysis

➢ **DATABASES**

The Study findings largely rely on extensive panel data concerning the key variables of the logic model described in Figure 2.2 above. To this end, an inventory of available data was carried out during the inception phase. This was followed by a substantial effort of systematisation of datasets, to address the numerous consistency and completeness

issues that emerged. This effort was necessary both for providing a thorough answer to the descriptive questions on the overtime trends in the market and taxation of tobacco, and for feeding these data in the quantitative analysis models. In fact, as discussed further below, some of the datasets identified turned out too incomplete or inconsistent to support an econometric assessment and different approaches had to be devised.

An overview of the main datasets collected and the processing activities performed is provided below.

- One of the major data sources are the ***Excise Duty Table*** (EDT) series compiled by DG TAXUD and the related Tax in Europe Database (TEDB). These include three main types of information:

    i. ***Tax rates and structures*** applicable in the Member States to the various categories of tobacco products and related main indicators, i.e.: the ***weighted average price*** (WAP), the ***excise duty yield*** at WAP level (EDY) and the total tax burden (excise duty plus VAT). Reporting delays from MS required a thorough cross-check between EDT and TEDB[45] and, occasionally, even national sources. WAP and EDY had to be recalculated taking into account the correct reference year (in year N, Member States report the WAP from N-1) and addressing completeness and consistency issues in a few cases. Earlier than 2010, the WAP was not officially calculated and reported, so we had to estimate it by 'triangulating' Euromonitor International price data with the data on releases for consumption and tax revenues.[46] In comparing WAP (and excise duty levels) between countries, attention had to be paid to apparent variations due to the fluctuation of exchange rates of certain national currencies (especially GBP).

    ii. ***Tax receipts***, broken down by cigarettes, cigars, cigarillos and other smoking tobacco. Firstly, it turned out that the figures on tax receipts in the EDT seldom coincided with the same metric published in the TEDB. The difference was seemingly due to MS including different items of the European System of Account in the total tax revenue reported, as well as possible breaks in the data series after the adoption of ESA 2010.[47] For consistency, we took up EDT figures in the Study, and used TEDB figures only for 'gap filling'.[48] Not all MS actually provide the tax receipt figures broken down by type of product, so this had to be estimated based on release for consumption and applicable tax regime figures.

    iii. ***Releases for consumption*** (RfC) data for cigarettes and fine-cut tobacco. In some cases, it was necessary to disaggregate FCT from other smoking tobacco, which some MS report jointly, and to fill data gap through estimates based on adjusted Euromonitor International data.[49] The EDT do not provide RfC data for other smoking tobacco, cigars and cigarillos, so these had to be

[45] Nowadays EDT is extract from TEDB, but in earlier years the EDT tax revenue data were communicated separately by Member States and no cross-check was carried out before their publication by the Commission.
[46] There are some relevant limitations concerning the matching of these data, such as price disparities due to the survey period of *Euromonitor International*, and the fact that sometimes the annual tax revenues reportedly refer to cash-flow while releases for consumption are measured per calendar year. These issues may affect punctual estimates, but not the analysis of the overall trends, since they can be assumed as persistent overtime.
[47] See: http://ec.europa.eu/eurostat/documents/3859598/5925693/KS-02-13-269-EN.PDF/44cd9d01-bc64-40e5-bd40-d17df0c69334. In the TEDB, it emerges that different MS includes different ESA codes in the calculation of the total tax receipts from manufactured tobacco.
[48] Moreover, TEDB figures are provided only in aggregated form, so disaggregation would require in any case making recourse to EDT. As discussed, there can nonetheless be issues with the EDT figures, since they are based on a questionnaire directly distributed to Member States and published as reported without further cross-checks.
[49] For instance, since 2017 figures are not provided in the EDT, we have applied to EDT 2016 figures the growth rate registered by Euromonitor in 2017. The Euromonitor figures could not be taken 'at face value' since they are estimated differently, however in terms of trend they seem largely consistent with EDT data.

estimated combining previous exercise figures (EA 2018) and estimations based on the ratio between tax receipts and the tax regime applicable.

- Secondly, we have acquired ***Euromonitor International*** data series since 2005 for all Member States (except MT, LU and CY, that are unavailable in the Euromonitor International portfolio) and selected non-EU countries (Russia, Belarus, Ukraine and Serbia). In particular:

  i. Overall ***market volume*** and ***value*** (in national currency and EUR) – primarily used for filling gaps in the RfC series and as the base for calculation of other analytical indicators based on the sample of brands covered by Euromonitor.
  ii. ***Retail price*** of cigarettes and FCT. Euromonitor International collects this information from store checks often providing separate figures for: (i) different stock-keeping unit (i.e. the different types of the same brand); (ii) different packaging (box or paper, number of units contained); (iii) different outlets (tobacconist, supermarkets, bar and restaurants, oil pump etc.). In seven EU countries the price of stock-keeping units can change at the retail level, so we had to calculate a single average price per brand. Some data gaps regarding recent years were filled through direct price search on retail outlets of the Member States. For the analysis of price trend in one country, we preferred to use prices expressed in national currency, to avoid the distortion induced by fluctuation in the exchange rate.
  iii. ***Market share by brands*** of cigarettes and FCT. The raw datasets contained some gaps and other scarcely plausible figures that had to be corrected through modelling. However, in order to avoid distorting the results of the analysis a 'light touch' was adopted. We primarily used these figures for the segmentation of the cigarettes market between low, mid, and premium price categories and for simulating the impact of change of structures on the market equilibrium.

- As regards novel products, a major data and information source has been the ***EcigIntelligence*** database and its market and regulatory 'trackers' on e-cigarettes and heated tobacco products (HTP). In particular, the figures drawn from EcigIntelligence regard: (i) market value and trends in MS (some 18 countries covered), (ii) price level trends for the various type of product, (ii) the estimated prevalence of consumers of e-cigarettes in the population, and (iv) the tax regime applied (where relevant). The EcigIntelligence data are collected through a number of sources and are the most detailed and consistent market source available, but they are not officially validated data. At present, there are no official statistics on these products available at the EU level, since the information collected under the TPD2 is not suitable for aggregated market estimate purposes. As regards the ***consumption prevalence***, we have developed model estimates combining EcigIntelligence data with the results of the ***Eurobarometer*** surveys (see below), and ***Euromonitor International*** estimates on the share of users among the population. As concerns ***heated tobacco products***, since at present the market consists essentially in one product market data that have been retrieved primarily from the manufacturer's (PMI) periodical report to investors.

- For smoking prevalence, we have matched different sources and in particular: ***WHO, Eurostat-EHIS, Eurobarometer***, and national estimates indicated by the public health authorities who took part in the consultation. The ***affordability indicators*** were developed combining different sources. First the standard relative income price (RIP) that has become the standard among public health practitioners for some

fifteen years has been considered[50]. The indicator is based on calculated per capita nominal GDP as a reasonable proxy of survey-based available income. The sensitivity of results was then tested under different assumptions both as regards the indicator for the level of prices: The MPPC, the WAP, the cheapest price on the market and alternative indicators of income including the per capita available income made available by Eurostat under different assumptions for currency conversion (at purchasing power parity - PPP - levels, at the prevailing rate, etc). In the econometric analysis we have also included an ordinal control variable for the ranking of tobacco control policies based on the largely expert judgement-based 'Tobacco Control Scale' despite its well-known limitations in capturing the public perception of tobacco control implementation as directly reported by consumers themselves.[51] For the estimation of ***social costs of smoking*** we have adopted for comparability the estimates used in the impact assessment underlying Directive 2014/40.

- There are limited data sources on ***illicit trade of tobacco*** flows and magnitude. At the time of research, the most comprehensive panel data source available was the KPMG's ***Project SUN*** (hereinafter 'SUN') report series, which contain detailed estimates of the overall amount of non-domestic consumption of cigarettes for all MS, further broken down by legal and illegal consumption (contraband and counterfeit, including 'illicit whites') and the origin of flows.[52] The SUN estimates are based on the 'empty pack survey' data collected at MS level by different independent market research agencies and elaborated by KPMG through its 'flow model'.[53] Although formally an independent exercise, commissioned in the latest edition by the Royal United Services Institute for Defence and Security Studies (RUSI), the Project SUN is sponsored by the industry.[54] For this reason the validity of its results have been questioned[55] and, despite their being used by some MS for their analytical activities, they need to be taken with due caution.

  While Project SUN provides the most complete historical dataset on illicit trade, various ***others estimates*** have been attempted in recent years both at the level of individual Member States (e.g. in Ireland[56] and the UK[57]) and in the framework of tobacco control studies,[58] in these cases the evidence was based on consumer

[50] Blecher EH, van Walbeek, CP, A*n international analysis of cigarette affordability* Tobacco Control 2004;13:339-346.
[51] Joossens L, Raw M, The Tobacco Control Scale: a new scale to measure country activity Tobacco Control 2006;15:247-253. We have tested the possibility of using WHO indicators to this end, but their level of granularity did not prove sufficiently informative for the purposes of this exercise. In fact, since the WHO indexes have a global coverage, they show very little difference between EU countries, which more or less entirely fall within the same ranking category. For this reason, the Tobacco Control Scale, where differences between EU countries are more marked, appeared preferable for analytical purposes.
[52] See: https://home.kpmg.com/uk/en/home/insights/2018/07/project-sun-2017.html. In early years, the project was named Project STAR. Overtime there has been refinements in the data collection and the analytical methodology applied, but no major break of time series is apparent.
[53] For a detailed description of the methodology used in Project SUN see KPMG, 2017 Results, Methodology and Appendices:
https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2018/09/project_sun_methodology.PDF
[54] Initially (Project STAR) the exercise was sponsored by PMI then, until 2015, by the four Big Tobacco companies. In 2016, JTI did not support the exercise.
[55] See: Joossens et al., From Cigarette Smuggling to Illicit Tobacco Trade, 2012; Gilmore et al., 'Towards a Greater Understanding of the Illicit Tobacco Trade in Europe: A Review of the PMI Funded 'Project Star' Report.', 2013.
[56] Each year since 2009, the Office of the Revenue Commissioners, in conjunction with the Health Service Executive's National Tobacco Control Office, commissioned independent market researches among smokers with the purpose of estimating the volume of non-Irish duty paid cigarettes being consumed in Ireland. For the latest edition see: https://www.revenue.ie/en/corporate/documents/research/illegal-tobacco-survey-2017.pdf
[57] See: HM Revenue and Customs, Measuring tax gaps 2018 edition. Tax gap estimates for 2016-17.
[58] See, for instance: Joossens L, Lugo A, La Vecchia C, et al. Illicit cigarettes and hand-rolled tobacco in 18 European countries: a cross-sectional survey. Tob Control 2014; 23:e17–23.; Guindon GE, Driezen P, Chaloupka FJ, et al. Cigarette tax avoidance and evasion: findings from the International Tobacco Control Policy Evaluation (ITC) project, Tob Control 2014;23:i13–22.

surveys, and/or the results of modelled estimates of 'total' against 'legal' consumption, as well as empty pack data. Also these sources present methodological limitations, such as small samples and possible under-reporting in the case of consumer's surveys[59], which add up to their limited geographical or historical coverage.

Against this framework the Commission has recently mandated a new study aimed at developing a methodology for an industry-independent assessment of illicit trade, which in the future is expected to fill in this information gap. However, this process was far from being completed in the timespan of the Assignment, so we had to provisionally develop our own estimates. Initially, we had attempted developing estimates by means of a model triangulating production and trade data (Eurostat's PRODCOM and Intra-EU and Extra-EU trade statistics), EDT's release for consumption data, SUN estimates and total consumption estimates (based on either Eurostat's Household Budget Survey or Eurobarometer). However, due to the significant gaps and inconsistencies in the datasets, the model was able to estimate only a few data points and for a limited number of countries. So, it was eventually decided to use for analytical purposes - and considering the above caveats – the raw data underlying Project SUN, re-elaborated by the Consultant in line with this Study needs and duly highlighting the (in)consistency with ***own survey-based estimates*** (elaborated from *Eurobarometer*) and ***seizures data*** collected from OLAF and directly from MS (through the tax authorities' consultation). As clearly specified by data providers, seizures data present serious limitations of comprehensiveness (estimated underreporting especially for minor-size seizures) and comparability (the databases are not checked and cleaned), so they should be taken with great caution.

- All other macro-economic and socio-demographic data required were sourced from ***Eurostat*** databases. In addition to the already-mentioned statistics on production and trade, we have collected from Eurostat data on GDP and income trends (inter alia to calculate the 'affordability' variable), price level and inflation trends (harmonised indexes of consumers prices – HICP), purchasing power parities (PPP) of EU countries, input/output tables, household budget expenditure, population trends etc. Exchange rates have been drawn from the European Central Bank annual averages.[60]

➢ ECONOMETRIC ANALYSIS

The backbone of the Study consists of a broad-scope quantitative analysis carried out through econometric methods, which aimed at investigating the dynamics of the tobacco market in the EU countries in relation to the tax policies established at the EU level. Specifically, the results of the econometric analysis have contributed, along with other sources of evidence, to answering the following research questions:

(1) What changes (if any) has the Directive produced on: (i) the structure and the level of market prices of tobacco products in MS; (ii) the demand for tobacco products and smoking prevalence; (iii) the substitution between cigarettes and FCT and with non-domestically taxed products; and, eventually, (iv) tax revenues?
(2) How would these variables change if the provisions of the Directive were modified, including (i) minimum rates (fixed and relative amount); (ii) excise duty structure (specific and ad valorem), and (iii) MED?

[59] In the abovementioned Joossens L, 2014 it is reported that some 1000 out of the 5000 smokers identified refused to show its pack of cigarettes to the enumerators.
[60] The EDT normally use the exchange rate registered in October of the previous year, which may be slightly dissimilar from the average annual exchange rate used in this Study (for countries whose exchange rate with the Euro is not fixed).

As shown in the impact chain logic model (see Section 2.2), these research questions imply estimating the following:

- the likely MS-level impact of a change in the EU-level minimum rates and structure of excise duty, in each Member State;
- the extent of the impact of excise increases on the retail selling price of products, differentiating, where relevant, between different tax components (specific, ad valorem and MED);
- the own- and cross-price elasticity of demand for the different tobacco products at the MS level, and between different price segments (low-/mid-price v. premium);
- the effects of the demand of non-domestic products and illegal products;
- the impact on the demand of a range of other possible factors, i.e. macroeconomic factors (income trends, inflation etc.), sociodemographic factors, tobacco control policies, emerging novel products, etc.

The full technical specifications and the results of the econometric analysis are reported in details in Volume 3. In summary, the demand estimation model developed consists of three-level equations:

(1) at the first level, we assessed the ***price elasticity of the demand for tobacco products*** – i.e. how the expenditure of consumers on any kind of tobacco products varies in relation to the average price of tobacco products;
(2) at the second level, we measured the conditional demand for the different types of products, i.e. how the above-mentioned expenditure would be allocated by consumers between the different products in relation to their relative prices, thereby measuring the ***conditional own- and cross-price elasticity between different products***;
(3) at the third level, we estimated the conditional demand for cigarettes belonging to different price segments, namely premium *vis-à-vis* low- and mid-price cigarettes, i.e. how the above expenditure on cigarettes estimated at the second level would be further split between different segments depending on the respective price levels, that is the ***conditional own- and cross-price elasticity between different market segments of cigarettes***.

We have tested both a linear model and a log-linear model, then chosen the latter since it provided the best fit with the data.

The impact of tax on prices is also estimated in a log-linear model and therefore what is actually measured is the '***pass-through elasticity***', i.e. the impact of a 1% change in taxes on prices, in percentage terms.

As briefly described in Box 2.1 below, the results of our econometric analysis are broadly in line with the scientific literature on this matter, with differences primarily due to either the scope of the analysis or the definition of the variables. At any rate, it is worth mentioning that different models and assumptions were considered and tested in the framework of the econometric analysis, which returned a range of partly different estimates (see Volume 3 for details). For the analysis of impacts, we have then retained the estimates related to the most convincing model. It is nonetheless important to remind that the point estimates of the coefficients used in the analysis are subject to a certain margin of error.

Box 2.1 – The price elasticity of the demand for tobacco products in the relevant literature.

The impact of tax increases on cigarette demand worldwide is modelled in a seminal World Bank report published nearly 20 years ago (Jha & Chaloupka, 1999). Compiling point estimates from a

range of country-level studies, the report assumed an elasticity of the demand for cigarettes of -0.4 in high income countries (based on UK and US studies) and of -0.8 in low/middle income countries (averaging estimates from China, Brazil, South Africa etc). These estimates have been largely used for policy and guidance purposes, including in the impact assessment underpinning TPD2.[61]

As argued by Gallus et al. (2006), the assumptions on which that model is based are highly conservative, therefore the results possibly underestimate the actual impact. A more recent meta-analysis, reviewing 86 different econometric studies on smoking, reported a mean price elasticity of -0.48 (Gallet & List, 2003). This encompassed various country-level studies, providing different estimates, for instance. the UK (-0.37) (Townsend, 1996), Finland (-0.5 to -0.95) (Pekurinen, 1989), Italy (-0.44) (Gallus et al., 2003), Spain (-0.2 to -1.25) (Fernandez et al., 2004), California (around -0.5) (Keeler et al., 1993; Sheu et al., 2004) and Canada (-0.52) (Gruber, 2003).

As regards Europe on the whole, in a seminal study based on cross-sectional data from 27 European countries, Townsend (1988) reached a point estimate of price elasticity of -0.4 and of income elasticity of -0.5. In a more recent work on price and cigarette consumption in Europe, Gallus et al. (2006) concludes that "*controlling for male to female prevalence ratio, price elasticities for consumption were -0.46 (95% confidence interval (CI) -0.74 to -0.17) and -0.74 (95% CI -1.13 to -0.35) for local and foreign brand, respectively*."

The recent monograph published by the U.S. National Cancer Institute and the WHO confirmed the inelastic nature of the demand for cigarettes in high income countries: "*nearly all empirical studies have found that the price elasticity of demand for tobacco products lies between zero and minus one*."[62] The study recognised the variability of the point estimates available in the literature, while confirming that the -0.4 average value laid down in the previous World Bank report can still represent a valid benchmark.

The econometric estimates elaborated in this Study are therefore broadly in line with the relevant economic literature. In particular, both the range (from -0.39 to -0.64) and the retained point estimate (-0.54) of the price elasticity for tobacco products in our model is rather consistent with the abovementioned results of previous keynote studies. For the sake of comparison, it is important to consider that the reference data used in our Study differ from the above along (at least) three dimensions:

(1) geographic coverage - EU 28 instead of MS or high-income countries, US, Japan, Korea etc. and, at the time of the 1999 World Bank report did not arguably include certain countries that were not yet part of the EU;
(2) timeframe – 2005-17 in our Study vis-à-vis earlier periods in the other studies cited (the seminal World Bank report refers to the 1990s);
(3) product coverage – all smoking tobacco products in our Study, vis-à-vis only cigarettes in most of the other works.

References:

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[61] Impact Assessment accompanying the document 'Proposal for a Directive of the European Parliament and of the Council on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco and related products'. SWD(2012) 452 final. The adoption of these estimates for EU policy follows their inclusion in a handbook published by IARC in 2011, and prepared by the Commission's funded PPACTE initiative, which involve the author of the previous World Bank report. IARC Handbooks of Cancer Prevention, Tobacco Control, Vol. 14: Effectiveness of Tax and Price Policies for Tobacco Control (2011: Lyon, France).

[62] U.S. National Cancer Institute and World Health Organization. *The Economics of Tobacco and Tobacco Control*. National Cancer Institute Tobacco Control Monograph 21. NIH Publication No. 16-CA-8029A. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute; and Geneva, CH: World Health Organization; 2016.

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In the case of '***unrecorded tobacco'*** analysis, data limitations were significant. In particular an initial attempt to estimates magnitude and trends combining production and trade statistics with consumption statistics was frustrated by poor quality and quantity of information actually available. Therefore, this research area had to be addressed using industry-sponsored data from Project SUN, re-aggregated in accordance with the Study needs. These data were compared with MS own estimates as well as with consumption-based estimates and seizure data, to assess their consistency. It was eventually possible to estimate a statistically-significant ***elasticity of the demand for 'unrecorded cigarettes'*** (both non-domestic legal cigarettes and illegal ones) to the price of domestic legal cigarettes. Additionally, we have estimated how the ***probability of generating a cross-border flow*** between two countries vary with the change in their price differentials.

In the case of ***novel products***, the information available – i.e. both market data as well as demand analyses – did not allow to set up a rigorous econometric assessment, so the analysis was primarily carried out based on the point estimates of the elasticity derived from the existing literature.

The forward-looking ***impact analysis*** of the Study is primarily based on the results of the econometric analysis, in the sense that the estimated elasticities have been used to predict how key variables like taxation, price level, demand, and tax revenues would evolve from the current baseline situation under the different policy scenarios. The exercise required also establishing assumptions on a few major intervening factors and in particular: (i) the tax trends in MS in the absence of EU intervention, which were assumed in line with the previous period (excluding MS where these have been directly influenced by EU minima); (ii) the expected trends in income and inflation, projecting the short-term Commission forecasts over the medium-term (iii) the inertial decline trends in the demand that is unrelated to price and affordability; and (iv) the inertial decline in illicit trade unrelated to price trends. Needless to say, all these assumptions enhance the degree of uncertainty of the estimates provided, which evidently increase for medium-term predictions.

Point (iv) above proved particularly challenging, since the data on ***illicit trade*** did not fit well the estimation of a constant percentage trend in the total consumption. So, we eventually opted for a ***linear trend model*** (without any quadratic or cubic term) that describes the decline of illicit trade in constant quantities, since this approach provided the best fit with the data. This model is reasonably robust in the short-term, while it rapidly loses significance in the medium-term, and does not support any long-term

conclusion.[63] Furthermore, it can be expected that in the medium-run the illicit trade trends will be also affected by the entry into force of the 'track-and-trace' system, envisaged under Directive 2014/40. In this sense, it is important to highlight that the focus of the analysis in this Study was to examine the role played by taxation in the illicit trade trends, so our estimates have to be considered only in that respect. Instead, no in-depth assessment of the impact of other enforcement policies was envisaged in the Study, and reference should be made to the DG SANTE background studies in this area.[64]

Another relevant remark regards the 'high-level' EU-wide design of the quantitative analysis. While the underlying data gathered refer to market, price and tax conditions in the Member States, the econometric analysis returned EU-level average estimates. The demand function estimated is isoelastic and not linear, so ***elasticities are assumed constant***, and for this reason EU-level estimates could be consistently applied to MS-level forecast, since they do not vary according to different market structures or conditions. Furthermore, we have used a '***fixed effects' model***, which controls for time-invariant unobserved factors at the level of the single MS and time-variant characteristics common to all EU MS. Nonetheless, MS-level forecast should be considered as approximation of the real trend that would occur in individual MS.

- **DOCUMENTARY REVIEW**

The gathering and processing of datasets was accompanied by an extensive mapping and review of documentary sources (see the Bibliography in Volume 3). The first line of research focussed on Directive 2011/64 and the broad policy environment. More specifically, it encompassed:

- ***Directive 2011/64*** and 'legacy' versions of the EU excise legislation on manufactured tobacco; the underlying impact assessment conducted in 2008 (IA 2008); the studies and reports conducted under the previous REFIT process, ('Ramboll 2014', 'EA 2018'), the DG TAXUD Reports of 2015 and 2018, the Council Conclusions of 2015 etc.
- The ***public health policy framework***, including the Directive 2014/40 ('Tobacco Products Directive' or 'TPD2') and related underlying preparatory studies and impact assessment documents; the international Framework Convention on Tobacco Control (FCTC) and related guidelines and reports.
- The policy framework concerning the ***fight against illicit trade of tobacco*** and fraud, i.e. the EU Strategy of 2013 and related Action Plan and the implementation Report of 2017, the agreements stipulated with manufacturers and related documents, the proceedings of the workshop on cigarettes smuggling at the European Parliament in 2014, the FCTC protocol on illicit trade etc.
- The ***excise duty system*** legal and operational framework, including Directive 2008/118 (the 'Horizontal' Directive) and implementation policies and measures (e.g. EMCS, administrative cooperation); the ***jurisprudence of the CJEU*** in this area; the related customs framework (e.g. the CN and HS classification, the binding tariff information (BTI) etc.); the competition cases (DG COMP register) etc.

[63] Otherwise, this would imply that in the absence of price increases (in real terms) the illicit trade would spontaneously disappear in the long-run – a conclusion that is not supported by our analysis.

[64] SWD(2017) 455 final, Impact Assessment accompanying the document Commission Implementing Regulation on technical standards for the establishment and operation of a traceability system for tobacco products and Commission Implementing Decision on technical standards for security features applied to tobacco products. Everis, 'Implementation analysis regarding the technical specifications and other key elements for a future EU system for traceability and security features in the field of tobacco products'. Final Report, April 2018.

A second line of desk work involved collecting and mapping the existing scientific literature and 'grey' literature on four main themes, as follows:

- Thematic EU-funded studies concerning specific issues at stake – e.g. JRC studies on e-cigarettes[65], research projects on tobacco control policies, such as PPACTE[66], etc. Other relevant studies and reports published by international organisations, i.e. WHO, the World Bank, OECD etc.
- Existing publications on modelling and analysing cigarettes and tobacco market dynamics, i.e. correlation of tax levels, prices and consumption, substitution across products, substitution with illicit products etc., including those promoted by national tax authorities (e.g. in Ireland).
- Existing publications on trends and factors underlying demand for tobacco products and smoking prevalence, including the relative impact of taxation and other tobacco control measures on demand, and socio-demographic factors, as well as literature on the quantification of ultimate public health impact of tobacco consumption.
- Specific information on new products regulatory and market trends in EU countries, as well as information on product developments, including outside the EU.

2.4 Outline of the impact analysis methodology

➢ **OVERVIEW AND STRUCTURE OF THE IMPACT ANALYSIS**

The second, forward-looking component of the Assignment, has been developed in the form of an impact analysis study. In line with the standard approach for this type of exercises laid down in the *Better Regulation*, this component entailed four analytical steps, as follows:

1. The ***problem analysis***, including an assessment of the current situation and a review of areas where suboptimal performance, inefficiencies etc. may require a policy intervention.
2. Establishment and analysis of the ***'no change' scenario***, i.e. the likely evolution of the issues identified, in the absence of an EU-level intervention, but considering other external factors like market trends, MS policies evolution etc. (dynamic baseline).
3. Identification of policy objectives for intervention at EU level (when proportionate) and of the various options available to possibly achieve the intended objectives – ***the 'policy change' scenario*** - and assessment of their likely impact, in line with the standard impact categories.
4. ***Comparison of scenarios*** ('change' and 'no change') based on multiple criteria and the balance of expected benefits and costs.

In this Study, the problem analysis largely coincides with the outcomes of the above 'retrospective' evaluation. In other words, the emerging issues, suboptimal achievement of objectives, and inefficient performances identified in the first part of the exercise constitute the starting point of the second part, i.e. the forward-looking component. However, not all the problems identified qualify for the impact analysis, in particular:

- The ***proportionality*** principle has to be considered, i.e. issues with limited effects or concerning only a few stakeholders or requiring interventions that are clearly exceeding the mandate of the Commission are mentioned but not included in the in-depth analysis.
- Some problems may have solutions that fall ***outside the scope*** of the Directive – and more generally of the policy process in course. Again, these instances are reported in

[65] E.g. Otmar Geiss, Dimitrios Kotzias, "Tobacco, Cigarettes and Cigarette Smoke", 2007.
[66] PPACTE: Pricing Policies and Control of Tobacco in Europe. http://www.tri.ie/ppacte.html

the Study, but the related options are not retained for the impact analysis since they do not pertain to the revision of the Directive.

- Some issues have ***already undergone an in-depth impact analysis*** under the previous exercise (EA 2018). Where the assumptions and the conclusions are still valid, there was no need for replicating the analysis. However, where newly available data allowed a refinement of the previous assessment (as in the case of novel products and FCT substitution) an update of the EA 2018 results have been carried out.

➢ RELEVANT IMPACT AREAS AND INDICATORS

Section 5 and 6 of the Report describe in greater detail the key steps linking the evaluative results with policy scenarios and the impact analysis. In brief, we have at first identified the policy problems emerging from the evaluative conclusions, formulating them in relation with the Directive objectives directly affected. Secondly, we have identified the concrete adverse impacts caused by the policy problems in the ***baseline situation***, i.e. in the absence of any policy change. The baseline assessment is an essential cornerstone of the analytical work, since it sets out the terms for comparison of the proposed policy scenarios. Thirdly, we have identified among the possible policy measures those that could address the specific adverse impacts identified. Finally, we have reviewed also the unintended effects that the policy scenarios selected could have.

Table 2.4 below summarises the specific impacts that have been identified and selected for the baseline assessment, with reference to the *Better Regulation* relevant category and some ***key indicators*** for measurement. It is useful to underline that these are the indicators for comparing the impact of scenarios (i.e. 'change' v. 'no change') and should not be confused with the more extensive list of indicators underlying the judgment criteria of the evaluation matrix.

Table 2.4 – Specific impacts and indicators for the baseline assessment

Relevant impacts related to policy problems	Impact areas*	Key indicator(s) for comparison of policy scenarios
1. Competition issues	*Functioning of the internal market and competition*	• Market size of domestic and non-domestic legal consumption (qt) • Market share of different tobacco products and trends (qt)
2. Fragmentation of the internal market		• Market size of novel products (qt-est.) • Perceived obstacles to trade (ql)
3. Competitive loss for SMEs	*Position of SMEs*	• Market segments with a high SME presence (ql) • Perceived competition issues (ql)
4. Regulatory burdens on business	*Operating costs and conduct of business*	• Estimated administrative and compliance costs and trends (qt-est./ql)
5. Tax revenue losses	*Public authorities (and budgets)*	• Amount of tax receipts (qt)
6. Regulatory burden on MS authorities		• Administrative and enforcement costs (qt-est./ql)
7. Tobacco control undermining	*Public health & safety and health systems*	• Smoking prevalence (qt-est.) • Social costs of smoking
8. Illicit trade of tobacco products	*Crime, terrorism and security*	• Market size of illicit trade of tobacco (qt-est.) • Perceived trends (ql)
9. Job losses	*Employment*	• Number of employees (qt)

Note: *(*) based on Better Regulation terminology and classification.*
Legend*: qt=indicator based on quantitative data; qt-est.=indicator based on estimated / modelled quantitative data; ql=indicator based on qualitative data*

- **COMPARISON OF SCENARIOS**

The final step of the analysis of impacts consists of the ***comparison of the scenarios***. The policy problems identified are often intertwined and may regard multiple provisions of the Directive. For this reason, the provisions subject to a possible change have been selected as the unit of analysis. In this respect, for each provision considered the available options are quite straightforward and are generally limited to two: (i) no change, or (ii) regulatory revision. On the other hand, for each proposed revision, we have envisaged a few variants and the possibility to include or not certain ancillary measures. Given the nature of the subject matter 'soft' non-binding measures have normally been discarded.

The scenarios were eventually compared with reference to the impact areas described above. Given the different nature of the impacts considered, the final comparisons required combining different approaches, and specifically, a partial cost-benefits analysis (CBA) approach for quantifiable (monetary) impacts, and a multi-criteria analysis (MCA) for non-quantifiable or mixed ones (such as public health impacts). For every impact area, a summary judgement has been provided including a rating of the positive or negative effect expected and the justification for the rating.

3. ANALYSIS OF THE BASELINE SITUATION

3.1 Overview

This Section contains a detailed analysis of the current situation and overtime evolution of market, consumption, price and tax levels for manufactured tobacco and 'novel products'.[67] The analysis is primarily numerical and factual and aims at responding the descriptive questions of the Assignment. The data and evidence presented in this Section are at the basis of the analysis conducted in the following sections of the Report.

In most cases, figures are the results of the Authors' elaboration of raw data drawn from a variety of sources (EDT, Eurostat, Eurobarometer, Euromonitor, EcigIntelligence etc.), which have been verified and processed, as described in the 'Methodology' (Section 2.3). It is important to underline that the market size estimates elaborated in this Study are ***subject to some degree of uncertainty***, especially as concerns products other than cigarettes. Implementing Decision 2011/480 does require MS authorities to regularly report to the Commission statistical data on price levels, tax revenue collected, quantities released for consumption, excise duty applied to the different categories of products, but there are several gaps and recording issues in the Commission databases. For instance, EU level statistics on OST and cigars and cigarillos released for consumption are not available, while various countries cannot distinguish between FCT and OST. We have addressed data gaps and inconsistencies by triangulating the information available in the Commission databases (excise rates, tax revenues, releases for consumption, and weighted average price) or, when this was not feasible, by integrating the missing information through other data sources (e.g. Euromonitor International). Inevitably, the results of our elaboration are not always coherent with industry self-reported data. For instance, we have inferred (where possible) the market size of cigars and cigarillos through the ratio between tax receipts and the rates applied in a given year, but the outcome is ca. 20% smaller than the estimates collected directly from the industry (based on Euromonitor International). Since industry data are in any case unofficial and considering that the geographical distribution and trends resulted overall aligned, we considered preferable to stick as much as possible to one source (DG TAXUD data) rather than mixing heterogenous sources, although this might have led to some under- or over- estimations, as in the case of cigars and cigarillos.

The analysis was conducted on data available by June 2018. With few exceptions, data published later could not been included.[68] Where relevant, this Section reports also the salient results of the econometric work conducted on the above datasets and the key variables estimated, e.g. on the elasticity of the demand, the cross-elasticity between products, the pass-through elasticity of taxes onto price etc.

The remainder of this Section comprises three main parts:

- ***Section 3.2*** reviews the overall market and consumption trends for all tobacco products and includes estimates for 'unrecorded' tobacco consumption and smoking prevalence;
- ***Section 3.3*** examines excise duty and price trends across MS as well as the trends in tax revenues;
- ***Section 3.4*** is dedicated to novel products, i.e. e-cigarettes and heated tobacco products, providing an updated overview of market and tax frameworks applied in EU countries.

[67] As discussed, the operational definition of 'novel products' used in this Study should not be confounded with the TPD2 definition of 'novel tobacco products'.
[68] However, in the Impact Analysis Section of the Study updated figures for the baseline year 2017 have been considered.

3.2 Overall market and consumption trends

3.2.1 Overall trends in the legal domestic consumption

- **MARKET SIZE TRENDS AND THE ELASTICITY OF THE DEMAND**

The volume of manufactured cigarettes released for consumption (RfC) in the EU has been steadily declining overtime (see Table 3.1). In about 12 years, the size of cigarette market has fallen from some 728 bn sticks in 2002 to less than 475 bn in 2017, corresponding to a decline of -3.5% year-on-year. Similar negative trends occurred in the market of other tobacco products, with the only exception of FCT. More specifically, the market of cigars and cigarillos went down from some overall 10.3 bn units in 2005 to 7.4 billion units in 2016, with cigarillos seemingly declining faster than cigars.[69] The fall of other smoking tobacco in 2005-17 was the most rapid, i.e. nearly -5.8% year-on-year, however after hitting its lowest point in 2013 a positive growth can be observed in the past few years. This could be due *inter alia* to the increasing popularity of water-pipe tobacco, but there are no official data to confirm this assumption.[70] FCT has seen a considerable growth in the period 2005-2012 (from 57.4 to 89.6 million kg), followed by a slow decline in the 2013-2016 period to the current estimated level of 83.3 million kg.

Table 3.1 – The size of manufactured tobacco market in the EU (2005-17)

Product	2005	-	2010	2011	2012	2013	2014	2015	2016	2017*	CAGR 2010-17**	CAGR 2005-17**
Cigarettes *(bn units)*	728.0		606.2	590.7	553.7	513.4	486.9	493.3	484.7	474.5	*-3.52%*	*-3.55%*
Cigars *(bn units)*	1.8		1.5	1.4	1.5	1.4	1.5	1.4	1.5	..	*-0.38%*	*-1.78%*
Cigarillos *(bn units)*	8.5		7.0	5.9	6.7	6.3	6.8	6.3	5.9	..	*-2.96%*	*-3.31%*
FCT *(million Kg)*	57.4		81.5	85.4	89.6	88.7	89.4	87.5	86.7	83.3	*0.04%*	*2.99%*
OST *(million Kg)*	7.5		4.5	4.4	3.9	3.4	3.4	3.8	3.9	..	*-2.33%*	*-5.78%*

Source: *Author's elaboration of mixed sources: EDT 'release for consumption' data for cigarettes and FCT, EA 2018 estimates (based on Euromonitor International data) for cigars, cigarillos and OST. Where feasible, non-official estimates were cross-checked with data on tax revenue for validation. There remained cases of mismatch between the 'release for consumption' figures and the corresponding EDT data on tax receipts that could not be reconciled.*
Legend: *CAGR - compounded annual growth rate; (..)= estimates not available.*
Notes: *(*) Figures for 2017 are based on the provisional estimates available at the time of the analysis. Where needed, EDT data have been integrated with estimates based on Euromonitor International growth rate for 2017. (**) Where 2017 figures are unavailable the CAGR refers to 2016.*

Interestingly, due to price effects, the market value of tobacco products did not follow the downward trend of sales (see Table 3.2). In the 2005-17 period the total market value of tobacco products in the EU has been growing from some EUR 109.3 bn in 2005, to some EUR 133.1 in 2010 to EUR 139.4 bn in 2016 (i.e. +2.2% annually). Such growth has regarded in particular FCT and cigars, while the cigarettes and cigarillos market values have remained substantially stable, and OST has declined. In more recent years (2010-17) the trends have significantly decelerated for all products (except OST).

[69] There is no distinction in the excise and customs classification between these two sub-categories of products. In some countries a distinction is made in the domestic regulation (hence separate tax receipts reporting in the EDT). Otherwise, only commercial-level distinctions are available. In this Study, we applied the relative market share between cigars and cigarillos elaborated under the previous EA 2018 (on the basis of Euromonitor International data) corrected, where feasible, with estimates elaborated from tax receipts data.
[70] Actually, as described in Section 3.2.2 roughly 50% of the demand of water-pipe tobacco consists of not tax-compliant products.

Table 3.2 – The value of manufactured tobacco market in the EU (2005-17)

Product	2005	-	2010	2011	2012	2013	2014	2015	2016	2017*	CAGR 2010-17**	CAGR 2005-17**
Cigarettes *(EUR bn)*	98.5		118.8	122.6	123.0	118.7	118.2	120.7	119.0	118.8	*-0.01%*	*1.57%*
Cigars *(EUR bn)*	1.8		2.3	2.1	2.3	2.4	2.7	2.9	2.7	..	*2.41%*	*3.68%*
Cigarillos *(EUR bn)*	1.5		1.6	1.4	1.6	1.6	1.7	1.7	1.6	..	*0.32%*	*0.51%*
FCT *(EUR bn)*	6.6		9.7	11.5	13.1	14.0	14.9	15.5	15.6	15.9	*7.25%*	*7.59%*
OST *(EUR bn)*	0.9		0.6	0.5	0.5	0.5	0.5	0.5	0.5	..	*-1.63%*	*-4.91%*
TOTAL	**109.3**		**133.1**	**138.1**	**140.7**	**137.2**	**138.0**	**141.3**	**139.4**	**..**	***0.78%***	***2.23%***

Source: *Author's estimates based on market size (see Table 3.1) and the weighted average price of products either (1) drawn from EDT for cigarettes and FCT (2010-2016); or (2) estimated based on Euromonitor International data. Where feasible, estimates based on non-official data were cross-checked with data on tax revenue for validation. There remain cases of mismatch between the market value estimates and the corresponding EDT data on tax receipts that could not be reconciled. Values in national currencies have been converted in EUR using the annual average exchange rate of the European Central Bank.*
Legend: *CAGR - compounded annual growth rate; (..)= estimates not available.*
Notes: *(*) Figures for 2017 are based on the provisional estimates available at the time of the analysis. Where needed, EDT data have been integrated with estimates based on Euromonitor International growth rate for 2017. (**) Where 2017 figures are unavailable the CAGR refers to 2016.*

The results of the ***econometric analysis*** (see Volume 3 for the model specifications) showed a statistically robust elasticity of the aggregated demand for tobacco products of ca. -0.54 meaning that *ceteris paribus* an increase of price levels by 10% corresponds to a decrease in the release for consumption (RfC) of (domestic legal) tobacco products equal to 5.4%.[71] The analysis also showed *inter alia* that:

- an increase in the level of income (deflated by consumer price index trends) translates in less-than proportional expenditure on tobacco products, in particular a 1% increase of real income corresponds to only 0.3% increase in the RfC of domestic tobacco products;
- the impact of tobacco control policies did not return statistically significant correlation with the aggregated sales of tobacco products, although – as discussed further below this seems due to the difficulties of capturing the strength of such policies through measurable variables. In fact, the model allowed to estimate at 1.7% the annual rate of 'systemic' reduction of the demand unrelated to price, hence attributable generically to such policies and any other social and cultural factor.

➢ MARKET COMPOSITION ACROSS MEMBER STATES

While cigarettes account for the bulk of the market in all MS, the sales of other tobacco products may vary significantly across countries. The Table 3.3 below shows the composition of national markets for the main smoking tobacco products and how it has evolved in the 2010-2016 period. For better comparability across products, the estimated value in EUR of respective market segments has been used. The following trends emerge:

- In nearly half of MS cigarettes represent more than 90% of market value. In some countries this exceed 97% (RO, MT, BG). Overall, the share of cigarettes has been declining in most of MS (except RO, LT, LV, EE and SE). In some countries, cigarettes

[71] Actually, different econometric models used in this Study returned different estimates of the overall elasticity ranging from -0.39 to -0.65. The value of -0.54 retained is associated to the model that in the Author's is the most robust and valid. Evidently, assuming a higher or a lower elasticity would lead to significantly different analytical results. See Volume 2 for the technical specifications and a detailed review of the different models used and their results.

have lost more than 10 percent points of market share in the period considered (SK, HU, and LU).

- In monetary terms, FCT accounts on average less than 9% of national markets share, ranging from nearly zero (RO) to more than 25% (LU, BE, NL and HU). With the only exceptions of SE, HR and EE, the market share of FCT has increased in all EU MS.
- Cigarillos represents between 0.1% (PL) to 3.1% (LV) of national markets value. In most EU countries only modest variations smaller than +/- 0.2 percentage points occurred in 2010-16. The main exceptions are: LT and LV that registered a decline of some 2 percentage points; DE, where cigarillos declined by 1.2 percentage points; and CY and ES, where consumption has increased by one percentage point. On average, the market share of cigarillos appears substantially stable.

Smokeless products fall outside the scope of the Directive and therefore of this Study. But for a better appreciation of market structures it is important to note that in the case of Sweden the consumption of *snus* amounts some 6,300 tonnes/year (2016 estimates) and since 2011 it exceeds, in equivalent volumetric terms, the demand for cigarettes (some 5.6 billion units in 2016). *Snus* cannot be commercialised in other EU countries, but there are reportedly cross-border flows from Sweden to Denmark and Finland.

Table 3.3 – Market shares in monetary value of selected products in MS

MS	Cigarette	Variation 2010-16*	MS	FCT	Variation 2010-16*	MS	Cigarillos	Variation 2010-16*
RO	99.1%	*0.2%*	**LU**	36.4%	*13.4%*	**LV**	3.1%	*-2.0%*
MT	98.6%	*-0.2%*	**BE**	28.7%	*9.7%*	**LT**	3.0%	*-1.8%*
BG	97.0%	*-0.1%*	**HU**	28.4%	*15.8%*	**FI**	2.7%	*0.0%*
HR	96.3%	*-0.8%*	**NL**	25.8%	*1.7%*	**FR**	2.7%	*0.3%*
PL	94.7%	*-0.8%*	**UK**	16.5%	*5.5%*	**CY**	2.3%	*1.3%*
LT	93.8%	*1.5%*	**EL**	15.8%	*8.3%*	**AT**	2.0%	*0.4%*
IT	93.6%	*-3.4%*	**DE**	14.6%	*3.3%*	**ES**	2.0%	*1.1%*
SI	93.2%	*-5.6%*	**FR**	12.8%	*5.0%*	**SE**	1.3%	*-0.1%*
PT	93.1%	*-2.8%*	**IE**	9.9%	*4.6%*	**DE**	1.2%	*-1.2%*
CY	92.5%	*-0.1%*	**ES**	8.2%	*4.4%*	**NL**	1.0%	*0.2%*
AT	92.2%	*-2.4%*	**FI**	6.1%	*0.3%*	**PT**	0.9%	*0.3%*
SE	91.4%	*1.1%*	**PT**	5.7%	*2.8%*	**HU**	0.8%	*0.2%*
EE	89.8%	*6.0%*	**PL**	4.1%	*0.7%*	**EE**	0.7%	*-0.2%*
LV	89.2%	*0.5%*	**IT**	4.1%	*2.9%*	**UK**	0.7%	*-0.2%*
FI	88.1%	*-0.4%*	**CZ**	4.0%	*1.9%*	**DK**	0.7%	*0.5%*
DK	87.9%	*-3.0%*	**DK**	4.0%	*0.5%*	**SI**	0.6%	*0.6%*
CZ	87.7%	*-2.3%*	**SE**	3.8%	*-0.6%*	**EL**	0.6%	*0.0%*
IE	87.3%	*-4.6%*	**AT**	3.8%	*1.8%*	**HR**	0.5%	*0.5%*
ES	87.0%	*-6.4%*	**SI**	3.6%	*3.0%*	**IT**	0.5%	*0.1%*
FR	83.7%	*-4.9%*	**BG**	2.2%	*0.1%*	**LU**	0.5%	*0.1%*
EL	81.9%	*-6.7%*	**LV**	2.0%	*0.8%*	**CZ**	0.4%	*0.0%*
DE	81.8%	*-2.3%*	**HR**	2.0%	*-0.8%*	**IE**	0.3%	*0.1%*
UK	81.3%	*-4.7%*	**EE**	1.7%	*-1.6%*	**MT**	0.3%	*0.1%*
SK	74.8%	*-14.1%*	**SK**	1.2%	*0.8%*	**RO**	0.3%	*-0.1%*
NL	70.6%	*-2.1%*	**LT**	1.1%	*0.5%*	**BG**	0.2%	*-0.1%*
BE	68.9%	*-8.9%*	**RO**	0.1%	*0.1%*	**SK**	0.2%	*0.1%*
HU	68.5%	*-12.7%*	**CY**	..	..	**BE**	0.2%	*0.0%*
LU	61.6%	*-13.3%*	**MT**	..	..	**PL**	0.1%	*0.1%*
EU	86.6%	*-3.3%*	**EU**	8.8%	*3.0%*	**EU**	1.1%	*0.0%*

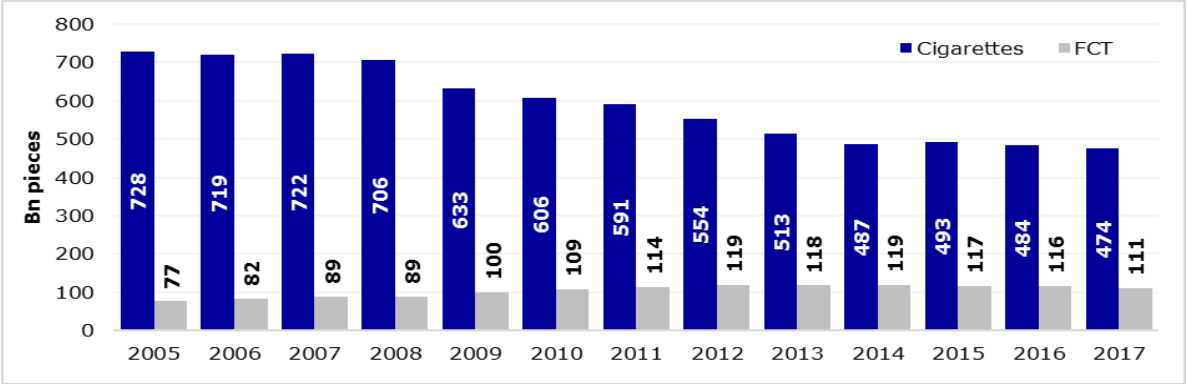
Source: *Author's estimates (see Table 3.1).*
Notes: *(*) the variation 2010-16 is expressed in percentage points.*

➢ TRADE-OFF BETWEEN CIGARETTES AND FCT AND CROSS-PRICE ELASTICITY

Since FCT is generally priced less than manufactured cigarettes, it is relevant to consider also the size of FCT market in volumetric terms and not only in monetary terms, in order to better appreciate overtime trends and the extent of the much-debated trade-off between these two categories of products.

Depending on the conversion rate used fine-cut tobacco (FCT) currently account for a share of the total cigarettes (i.e. sum of manufactured and hand-rolled cigarettes in the EU) that ranges between 17.5% (1g=1 stick conversion rate) to 23.4% (0.75g=1 stick).[72] The FCT share has grown especially in the 2008-2014 period, moving from some 10.5% to some 24.5% (using the 0.75g conversion rate). More recently, the respective trends have rather stabilised and no significant trade-off is visible (Figure 3.1).

Figure 3.1 – EU market size trend for cigarettes and FCT (stick-equivalent)

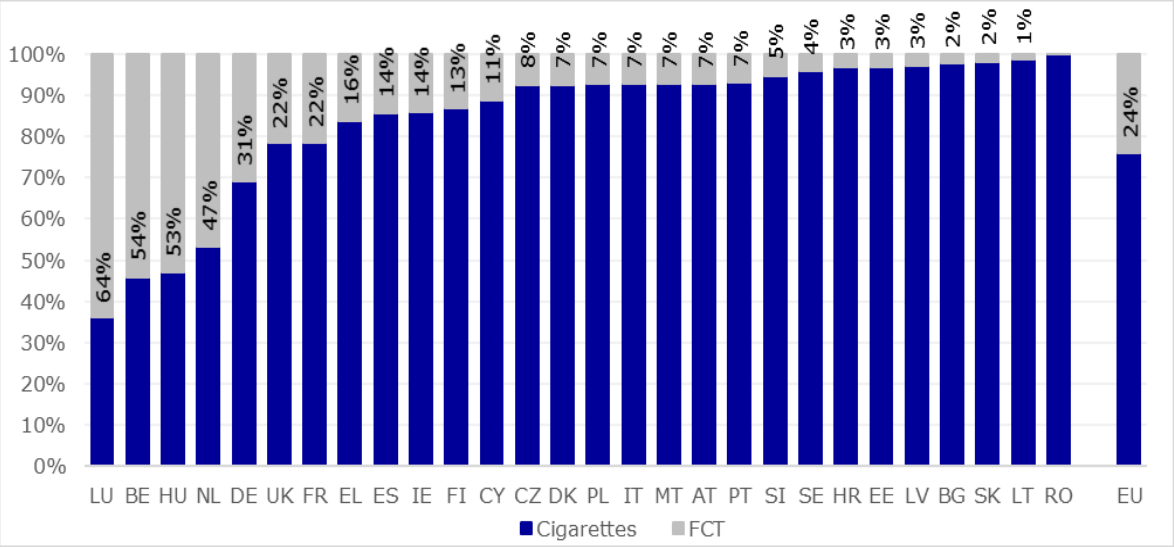


Source: *Author's elaboration on EDT data (complemented by Euromonitor International where needed).*
Note: *Figures for FCT are in 'stick-equivalent'. The conversion rate applied is 0.75g=1 stick.*

The penetration of FCT is highly skewed across the EU. In LU, BE, NL and HU it represents some half of the cigarettes market, whereas in most of south-eastern Europe MS and in the Baltic regions it remains below 3%. It is also important to highlight that while in some countries FCT consumption is a rather recent phenomenon (e.g. EL, ES, IE, IT and HU), in other countries it is rooted in consumers' habits since much longer (NL, BE, LU, FR, FI, SE and DE). In some countries, e.g. SE, FI and NL, a countertendency can be noted, with the share of FCT over the total cigarettes in 2016 lower than it was in 2006. A quite special case is Portugal, where FCT became rapidly popular between 2009 and 2012 then dropped to 2009 levels in the 2013-16 period.

[72] The 1g =1 stick conversion has been used by the Commission in the Impact Assessment underlying Directive 2011/64., "Commission Staff Working Document, Accompanying document to the Proposal for a Council Directive amending Council directive 95/59/EC, 92/79/EEC and 92/80/EEC on the structure and the rates of excise duty applied to manufactured tobacco", Impact Assessment, COM(2008)459, 16.7.2008, at p. 43 and ff. However, this proportion seemingly does not correspond to the reality of consumption patterns. This is partly due to the fact that part of FCT – especially the so-called 'make your-own' (MYO) - contains 'expanded tobacco (DIET – Dry Ice Expanded Tobacco) which allows consumers to make more cigarettes from the same amount in grams of tobacco. For this reason, industry, authorities and researchers commonly apply lower conversion rates. For instance: the DG SANTE practical guide on the reporting of tobacco product ingredients, states that 'one unit of product' corresponds to one cigarette or 0.75 g of FCT; the PPACTE project estimated a median weight of 0.79g per cigarette, based on a survey of 185 smokers; Swedish authorities estimated a conversion ranging from 0,75g to 0,81g; industry views mostly fall in the 0,7g – 0,8g range, although some stakeholders support the 1g equivalence (see EA 2018 for details).

Figure 3.2 – Share of FCT (stick-equivalent) on the total cigarettes in Member States (2016)



Source: *Author's elaboration on EDT data (complemented by Euromonitor International where needed).*
Note: *Figures for FCT are in 'stick-equivalent'. The conversion rate applied is 0.75g=1 stick.*

We have investigated the respective demand of cigarettes and FCT econometrically, i.e. the ***cross-price elasticity*** of the demand. The model specifications are provided in Volume 3, while a fully-fledged analysis of policy implications is provided in Section 4.4 ('Effectiveness'). It is nonetheless useful to anticipate that robust correlations have been found between the dynamic of price and quantity demanded between these products and in particular:

- An increase in the price level of (domestic legal) cigarettes is associated to a decrease of the release for consumption (RfC) of cigarettes but also to a significant increase in the RfC of FCT ('conditional' cross-elasticity=1.38).
- Conversely, an increase in the price level of FCT correlates to a decrease of the RfC of FCT but to a negligible increase of RfC of cigarettes ('conditional' cross-elasticity=-0.02), which suggest that consumers who traded down to FCT would be reluctant to go back to cigarettes and might search for other alternatives.[73]

To avoid confusion, it is important to underline that in our analysis this step corresponds to the second level of the demand function, which describes how the consumer allocate the total expenditure between different products, where the level of such expenditure is determined by the first-level general demand for tobacco products. In this sense, the (own- and cross-) price elasticity estimates in the second-level equations refer to the 'conditional demand' and should not be confused with the general demand for tobacco that is subject, in our analysis, to a price elasticity of -0.54. It is also useful to underline that in our model the demand function is iso-elastic, i.e. a constant elasticity is assumed throughout the distribution, so price elasticity does not change with the market share of products.

- **THE FORESTALLING 'BIAS' ON RELEASE FOR CONSUMPTION DATA**

Forestalling is the practice of augmenting stocks of duty-paid product prior to the entry into force of a new regulatory measure - such as tax increases, product packaging obligations (pictorial warnings, plain package obligations etc.) and the like. Forestalling may cause a temporary fluctuation in the supply trend that is normally compensated by

[73] Also in this case, we have calculated different estimates using different models. The value reported are those that seems more reliable for the purpose of the analysis.

lower releases for consumption in the following period. Since tax hikes and other regulatory measures commonly enter into force at the beginning of each new year, forestalling tends to occur in the last months of the preceding year, thus perturbating annual sales statistics. When the excise duty paid on these products is registered by tax authorities in the following year – since Member States can have different accounting practices - there results a mismatch between tax revenues and RfC volume.

In this sense, forestalling may explain certain RfC increases that occurred prior to major tax hikes in EL (2010, 2016), BG (2016, 2017), NL (2015), CZ (2008) and EE (2017). Similarly, the temporary increase of the overall RfC in the EU registered in 2015 (see Table 3.3 above), may be linked to the upcoming new rules on packaging established by the TPD2.

Our econometric analysis investigated the possible delayed effects of tax increase on prices possibly due to forestalling (see Volume 3). In brief, the results confirmed that, on average, a 10% increase in the excise duty on cigarettes produces a 6.8% increase of price levels in the same year and an 'extra' increase of 1.0% in the following year.

Some MS have anti-forestalling measures in place, which in one instance has become the subject of a legal case between the Commission and a Member State.[74] The Ramboll 2014 study investigated the possible demand for common anti-forestalling measures to be adopted at EU-level, but the results indicated that harmonisation was not desired and/or feasible.[75]

3.2.2 Actual demand and consumption

The volume of products 'released for consumption' (RfC) is an imprecise measurement of the level of domestic consumption of tobacco not only for the 'forestalling' practices described above, but more importantly for the existence of an ***unrecorded tobacco consumption***. The unrecorded tobacco consumption consists of the following components (and sub-components), as follows:

1. ***Non-domestic legal products from the EU*** (hereinafter 'NDL' products), i.e. legally-manufactured tobacco products that are released for consumption (duty-paid) in another EU country. NDL can be further subdivided in (i) cross-border shopping for licit consumption (i.e. for private use) and (ii) 'bootlegging', i.e. cross-border purchases of legal products for illicit reselling, or in any case abusing the 'private consumption' criterion. In practical terms this distinction is currently not easy enforceable given the absence of objective criteria to determine the actual intention of use. The current rules require MS to consider different criteria (Art. 32 of Directive 2008/118), including a quantitative criterion that for cigarettes cannot be lower than 800 sticks of cigarettes.[76] According to the authorities interviewed, below such threshold the private use is generally presumed. Above this threshold, enforcement officers of the MS conduct further enquiries. Reportedly, if the other conditions allow, various countries tend to permit amounts for 'private use' of up to 2000 sticks of cigarettes.
2. ***External legal products***, including all tobacco products purchased outside the EU (including in MS territories not covered by the Directive and/or under special tax and custom regime) as well as 'duty-free' products, brought legally into the EU by travellers within the quantitative limits allowed. This category is of limited

[74] In Portugal, accumulated stocks must be depleted within the third month of the year following the year indicated on the tax stamp. The Commission has taken the view that this rule is not compliant with Directive 2008/118. The case is at the time of writing before the CJEU for a preliminary ruling (C-126/15).
[75] See: Ramboll 2014.
[76] Such quantity was temporarily reduced until the end of 2017 for individual coming from MS that had been granted a transitional period to align to EU minima.

relevance for the purpose of this Study since it is not directly impacted by the EU legislation on excise duty rates and structures and it consists of legal products. There can be issues with the inflow into the EU of products from e.g. Canary Islands, Andorra, Gibraltar, San Marino etc. but this seems more a matter of trade and customs agreements than of excise system in strict sense. By analogy, we can assume that part of RfC in the EU is consumed by non-EU citizens (travellers, tourists, etc.), but rough estimates of this consumption based on the available statistics on overnight stays indicate that it is a marginal component.[77]

3. ***Illegal tobacco products***. For 'illegal products' we intend here non-tax compliant products such as: (a) contraband of genuine branded products not taxed (e.g. illegally imported / falsely exported), (b) counterfeit branded products (of any origin); (c) tobacco products illegally manufactured (in the EU); (d) 'illicit whites' smuggled from non-EU country (irrespective of their legal status in the country of origin)[78]. While these differences obviously matter for detection of and fight against illicit trade, for the purpose of this Study illegal tobacco can be treated as a homogeneous phenomenon. It can be observed that the abovementioned 'bootlegging' is conceptually similar to illicit trade ('ant-smuggling'), however since it is a form of tax avoidance that nevertheless implies the payment of an excise duty in another MS (and is generally not connected to organised crime), is treated separately.

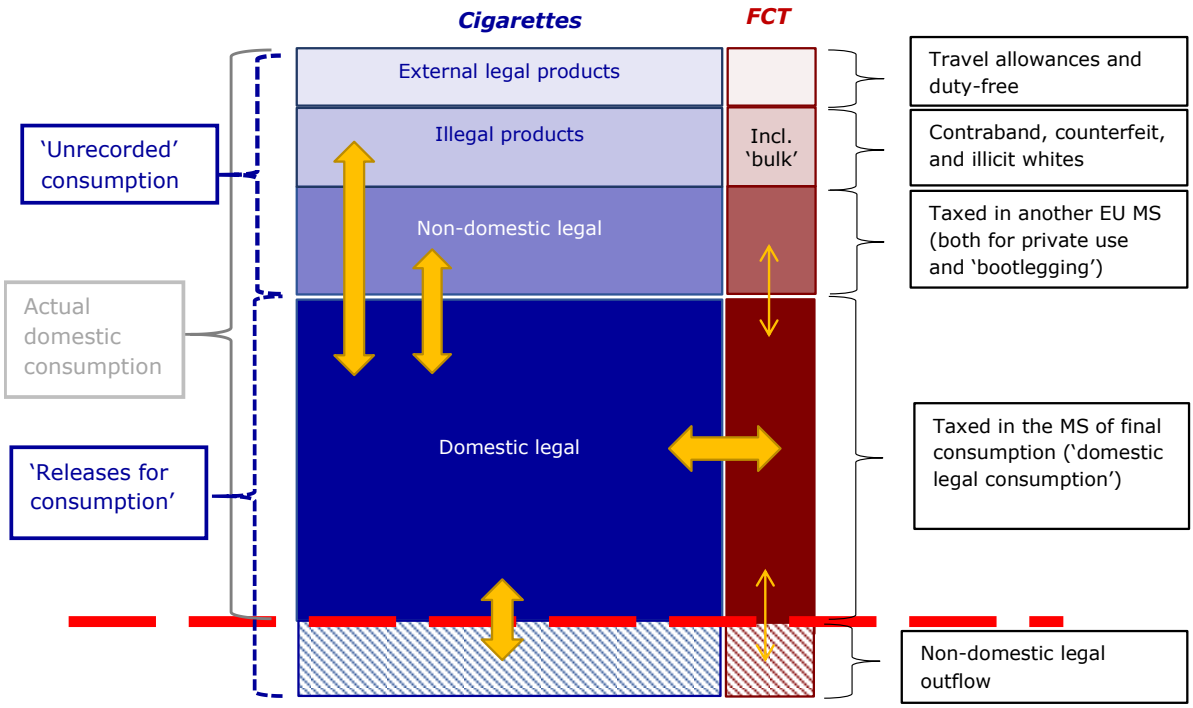
In simple terms, the relation between release for consumption (RfC) and domestic consumption and its various components and driving forces can be depicted as in Figure 3.3 below. In particular, the actual domestic consumption is represented by the proportion of the figure above the red bottom line and consists of the RfC volume reduced by the cross-border outflow of domestically-taxed product and augmented of the inflow of NDL and illegal tobacco.[79] In other words, the amount of RfC cigarettes actually consumed in a given country may vary not only in relation to the demand but also to the extent of the substitution with unrecorded cigarettes or with FCT or other tobacco products (yellow arrows). For countries with a high net cross-border inflow (e.g. France) or outflow (e.g. Luxembourg) of duty-paid products the RfC can therefore be a misleading indicator, and it should ideally be complemented with actual consumption data.

[77] Using the statistics published in the latest European Union Tourism Trends Report of the World Tourism Organization (based on Eurostat), we have estimated such consumption around 0.1% of the total RfC in the EU. https://www.e-unwto.org/doi/book/10.18111/9789284419470

[78] By 'illicit white' or 'cheap white' we intend brands manufactured legitimately in non-EU countries but smuggled and sold illegally in the EU evading duties.

[79] Domestic consumption also includes duty-free cigarettes legally purchased in non-EU MS, which for simplicity are not displayed in the Figure.

Figure 3.3 – Releases for consumption and actual domestic consumption



Source: *Author's elaboration*

While Commission's efforts to develop an appropriate methodology to measure unrecorded tobacco consumption are ongoing, we had initially attempted to elaborate some own estimates of these trends based on secondary sources – i.e. triangulating production and trade statistics with consumption statistics and release for consumption data. But the outcome was not satisfactory, since the estimates were often not comprehensive or scarcely plausible, primarily because of various severe data gaps and inconsistencies in the underlying statistics. Therefore, we have opted for a different approach, which consisted in re-elaborating the *Project SUN* raw data (deriving from the 'empty pack surveys' conducted in all MS) in accordance with the need of our Study and keeping in mind the limitations discussed in the Methodology. Such estimates have been cross-checked for a general coherence of trends with: own estimates based on Eurobarometer data and other official statistics, estimates provided by MS that took part to the tax authorities consultation, seizure data, and other estimates from scientific literature and other secondary sources.

- **NON-DOMESTIC LEGAL CIGARETTES CONSUMPTION**

For the relative majority of tax authorities of the MS, there has been no substantial change in the ***amount of non-domestic legal (NDL) cigarettes*** consumed in their countries, in the 2011-2017 period (Table 3.4.A). A distinction should nonetheless be made between NDL for private consumption and for illicit reselling purposes: one third of countries (especially high-tax MS) reported an increase of the former, whereas only a couple of them perceived an increase of the latter. It must be said, that the monitoring of NDL flows is complex and estimating the magnitude of such flows that possibly abuse the 'private consumption' principle is quite aleatory, so the majority of respondents were not in the position of providing quantifiable estimates. In the seven countries that reported some NDL estimates the magnitude of flows differ significantly (Table 3.4.B), with MS reporting an incidence close to 15% and others as low as 1%. Also trends are divergent: two MS reported a major overall increase (calculated on the overall 2011-17 period or similar), three reported a decline, and two reported only minor changes.

Only two MS (not displayed) reported estimates on the amount and trend in the ***NDL inflows of FCT***, confirming that there is a major lack of information on this phenomenon.

Table 3.4 – NDL inflow trends estimated by the tax customs authorities of MS

A) Perceived trends in NDL (number of MS)

	SI	MI	NC	MD	SD	DK
NDL for private use	1	6	7	1	1	6
NDL for illicit reselling	1	1	9	0	0	11

B) Estimated incidence and trends of NDL reported in some MS

MS*	Period	Incidence on total consumption	Trend
I	2011-17	7.1%	10.1%
II	2011-17	7.0%	-58.3%
III	2011-17	13.0%	-24.7%
IV	2011-16	1.3%	87.5%
V	2011-15	14.8%	-6.5%
VI	2012-16	1.0%	-41.3%
VII	2015-17	6.1%	77.3%

Source: *Targeted consultation of tax authorities (24 respondents). (*) reporting countries are not disclosed to preserve the confidentiality of the information.*
Legend: *SI=significant increase; MI=moderate increase; NC=no change; MD=moderate decline; SD=significant decline; DK=don't know. NDL=non-domestic legal cigarettes.*

In 2012, the ***Eurobarometer*** 385, included a few questions on the cross-border purchasing of tobacco among Europeans. Overall, it emerged that some 8% of respondents had purchased tobacco in another EU country over the previous 12 months, and specifically 5% have intentionally purchased tobacco products cross-border (i.e. not because they happened to be in another EU country). Including also those who reported purchasing tobacco in a non-EU country, the share of Europeans having travelled abroad with the intent of purchasing tobacco amounted to 7%. The survey provided other relevant information on this phenomenon, namely:

- The lower price was the main reason for buying tobacco abroad (60% of respondent). Some 2% admitted that the main reason was that the product was forbidden in their country (very likely concerning *snus*).
- One-fifth of those who consumed tobacco purchased abroad 'with intent' (i.e. some 1.2% of the total sample) did not actually travel but received the tobacco from someone else, in apparent infringement of the 'private use' principle underlying cross-border movements of tobacco products.
- Of the respondents who had purchased tobacco abroad 'with intent', some 46% said that their purchases represented less than 5% of their annual tobacco consumption. Conversely, 20% of them (i.e. 1.4% of the total sample) reported to buy abroad more than 50% of their annual need.

The main limitations of the Eurobarometer data consist in the small samples covered (at country level the number of consumers surveyed who reported cross-border purchase was 75 on average, but in various MS it was below 30 individuals), in the absence of repetition (no trends available). Since it measured the prevalence of the phenomenon among smokers but not the volume of products concerned it is also of limited use for measuring the market and tax impact, while remaining a useful source for data 'triangulation'.

The most comprehensive source of panel data on NDL is the annual ***Project SUN*** study carried out by KPMG (hereinafter 'SUN') – an exercise traditionally sponsored by the major cigarettes manufacturers and lately commissioned by the Royal United Services Institute for Defence and Security Services (RUSI). The SUN estimates are the results on a model that measures the flows to and from each EU country (plus Norway and

Switzerland), based on the amount of legal domestic sales and the results of 'empty pack surveys' conducted in the different MS by various market research agencies. The model distinguishes genuine NDL purchase for private use from illicit 'bootlegging' using primarily tourism and travel data from the United Nations World Tourism Organisation.[80] The industry's sponsorship of the exercise poses evident limitations to the use of SUN results for public policy purposes. On the other hand, it should be noted that three of the seven estimates on NDL reported by MS in the framework of the targeted consultation (Table 3.4.B above) coincided (or were based on) the SUN estimates, suggesting their usability for research and analysis purposes. This was also confirmed in some in-depth interviews with MS authorities although since views diverge significantly these data have nonetheless to be taken with due caution.

As explained in the Methodology, in this Study, we do not actually simply report the SUN results but we have elaborated our own estimates based on SUN's underlying raw data[81], i.e. the data on cross-country flows prior to the attribution of shares to genuine or illicit NDL. In other words, in this Study 'NDL' refer to the overall cross-border flows of cigarettes duty-paid in another country, irrespective of whether they are assumed for licit 'private use' or for illicit reselling. The aggregated results of our analysis of SUN raw data are reported in Table 3.5 below. It can be noted that the tax authorities' mixed perceptions emerging from the consultation seem confirmed by data. The ***volume of NDL cigarettes*** (according to this Study's definition) have increased from some 32 bn to 36 bn between 2010 and 2012, then declined to less than 30 bn in 2016. As a share of the total cigarettes released for consumption in the EU, those moved across the border for both private legitimate consumption or illicit reselling ranged between 5.3% and 6.7% in the period examined.

Table 3.5 – Estimates of consumption of non-domestic legal cigarettes in the EU

	2010	2011	2012	2013	2014	2015	2016
NDL*	32.0	34.4	36.3	34.4	31.4	30.8	30.0
RfC	606.2	590.7	553.7	513.4	486.9	493.3	484.4
Share of NDL* on RfC	5.3%	5.8%	6.6%	6.7%	6.5%	6.2%	6.2%

Source: *Author's re-elaboration of Project SUN raw dataset.*
Notes: *(*) the definition of NDL used in this Study is slightly different than the SUN definition of ND(L), for this reason figures may not fully coincide with the SUN report. Differences are purely based on different aggregation of raw data, while no modification whatsoever of underlying estimates have been made.*
Legend: *RfC=releases for consumption (of cigarettes); NDL= Non-domestic legal cigarettes.*

The magnitude and the direction of cross-border flows of NDL evidently vary greatly between countries. Table 3.6 below provides a few indicators in this respect:

- The outflow of NDL appears quite skewed, with a majority of MS registering modest flows, below 5% of the total RfC, and others where outflows have exceeded 20% in the 2010-2016 period. The distribution is partly correlated with price levels, but

[80] For a detailed description of the methodology used in Project SUN see KPMG, 2017 Results, Methodology and Appendices: https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2018/09/project_sun_methodology.PDF

[81] The raw datasets are regularly published in the appendices of the Project SUN editions. For disaggregation it has been assumed that the products labelled as C&C in the Project SUN includes both an (estimated) illicit NDL component and illegal products that mainly come from third countries (or are of unknown origin). So, deducting the products without a clear EU origin from the C&C we could calculate the illicit NDL component, which have then been added to the 'licit NDL' component to come up with the total NDL estimates used in this Study. In other words, our NDL *de facto* represents SUN's total non-domestic (ND) estimates of genuine products that originate from an EU country (based on EPS). In this sense, we assume that contraband of non-taxed genuine branded products between EU country is marginal. This assumption – verified with stakeholders - is based on the fact that the EMCS system is effective against the diversion to illicit of genuine products under duty suspension and that packaged products diverted to illicit through 'fake' export procedures would carry the package of the country of destination so would be classified otherwise in the EPS exercise. Needless to say, this assumption is subject to a certain degree of uncertainty, and may not be robust in certain geographical areas.

geographical proximity also seemingly plays a major role, as in the case of e.g. LU (49% outflow incidence) and BE (17%).

- Similarly, the incidence of NDL inflow on the domestic consumption is almost negligible (<4%) in 19 MS, but in five MS it reaches for 13%-18%.
- Since MS can register both inflows from some countries and outflows to other ones, it can be interesting to combine the two indicators to estimate the 'net' situation of the country and divide them into clusters. It emerges that for nearly two-third of MS the difference between the inflow and the outflow incidence is small and comprised between -10% and +10%. A few countries emerge as major net sources of NDL flows, i.e. CZ, EE, LU, PL, and SI, while others are seemingly major net recipients of NDL inflows, i.e. AT, DE, FR, IE and NL.
- There is a quite significant correlation (0.7) between our estimates of cross-border flows volume and the results of the Eurobarometer 385 survey on the share of consumers reporting cross-border purchasing, somehow reinforcing the validity of both estimates.

Table 3.6 – SUN-based magnitude and direction of cross-border flows of NDL across MS (2010-16)

MS	NDL Outflow (2010-16)			NDL Inflow (2010-16)			Balance
	Average	Incidence	CAGR	Average	Incidence	CAGR	
AT	0.4	3%	-7%	2.04	14%	-2%	**High IN**
BE	1.8	17%	15%	0.83	8%	-10%	Mod OUT
BG	0.4	3%	15%	0.03	0%	-1%	Mod OUT
CY	0.1	8%	-20%	0.01	1%	4%	Mod OUT
CZ	6.1	30%	4%	0.13	1%	-8%	**High OUT**
DE	1.2	1%	1%	14.26	15%	-3%	**High IN**
DK	0.1	2%	-12%	0.19	3%	-16%	Mod IN
EE	0.3	17%	4%	0.01	1%	32%	**High OUT**
EL	0.4	2%	-9%	0.11	1%	13%	Mod OUT
ES	3.9	7%	-2%	0.23	0%	-6%	Mod OUT
FI	0.0	1%	18%	0.32	6%	3%	Mod IN
FR	0.5	1%	-12%	7.01	13%	5%	**High IN**
HR*	0.2	4%	..	0.01	0%	..	Mod OUT
HU	1.0	10%	-3%	0.09	1%	13%	Mod OUT
IE	0.1	2%	4%	0.75	18%	-7%	**High IN**
IT	0.9	1%	-3%	0.80	1%	-15%	Mod OUT
LT	0.3	10%	7%	0.07	3%	-8%	Mod OUT
LU	1.7	49%	4%	0.01	0%	-3%	**High OUT**
LV	0.1	4%	14%	0.01	1%	16%	Mod OUT
MT	0.0	9%	-6%	0.01	1%	13%	Mod OUT
NL	0.3	3%	-8%	1.65	13%	-8%	**High IN**
PL	8.9	18%	-5%	0.16	0%	36%	**High OUT**
PT	0.6	5%	-10%	0.07	1%	-9%	Mod OUT
RO	1.4	6%	4%	0.05	0%	-19%	Mod OUT
SE	0.2	3%	-17%	0.21	3%	2%	Mod IN
SI	1.0	24%	-9%	0.05	1%	35%	**High OUT**
SK	0.3	4%	7%	0.05	1%	-2%	Mod OUT
UK	0.4	1%	-8%	3.59	9%	5%	Mod IN

Source: *Author's re-elaboration of Project SUN raw dataset, and EDT.*
Legend*: CAGR=compounded annual growth rate; (..)=data missing; Mod IN / OUT= the difference between the outflow and inflow incidence is comprised between -10% and + 10%; High IN / OUT= the difference exceeds +/- 10%.*
Notes: *(*) Data for HR refer to 2013-16. The 'outflow incidence' is the ratio between the amount of NDL outflow and the total RfC; the 'inflow incidence' is the ratio between NDL inflow and the sum of inflows and RfC minus outflows (in other words is the share of NDL inflow on the total domestic consumption of legal products).*

As part of the econometric analysis, we have also attempted to estimate the ***impact of price differential on the flows of NDL cigarettes*** between EU countries. In brief (see Volume 3 for technical specifications of the model), our estimates indicate that: (1) where a relevant flow between two MS pre-exists, a 1% increase in the price differential would likely induced a 0.28% increase in the volume of the flow; while (2) where such flow does not exist (or is negligible) a 1% increase in the price differential

would increase by 0.33% the probability of generating a cross-border flow. This analysis is fairly pioneering given the lack of similar studies on EU countries at the time of this research.

Actually, very recently (November 2018) an analogous research on this subject, conducted with an econometric approach, was published by M. Stoklosa.[82] The underlying data and methods used are somehow different but the findings appear quite coherent with our results, namely:

- the differences in cigarette prices encourage cross-border flows of NDL between MS;
- the impact on tax revenue is limited, amounting to 1.5% of tax-paid sales on average (in our Study it is larger but only of 1.5 point, i.e. 3%, but possibly due to a somehow different definition of the indicator).

➢ ILLEGAL CIGARETTES CONSUMPTION

As regards illegal cigarettes – i.e. contraband and counterfeit cigarettes, including 'illicit whites' – mixed trends seem prevailing, with almost equal shares of MS reporting an increase, or a decline, or no relevant change in the 2011-17 period (see Table 3.7). Some five countries, however, registered an increase in the illegal manufacturing of cigarettes in their territories. Only six national authorities provided estimates on the quantity of illegal cigarettes presumably consumed in their countries, with incidence rates varying from 1% to 18%. With only one exception, all reporting MS registered a decrease of illegal products in the period considered.

Table 3.7 – Illegal cigarettes trends estimated by tax authorities of the MS

A) Perceived trends of illegal cigarettes (number of MS)

	SI	MI	NC	MD	SD	DK
Counterfeit and contraband cigarettes of foreign origin	2	5	6	3	4	3
Cigarettes illegally manufactured in the country	2	3	6	1	2	9

B) Estimated incidence and trends of illegal cigarettes reported by some MS

MS*	Period	Incidence	Trend
I	2011-17	1.0%	-53%
II	2011-17	18.2%	-41%
III	2011-17	5.4%	25%
IV	2013-17	14.7%	-11%
V	2012-16	9.1%	-56%
VI	2012-16	13.5%	-4%
VII	2015-17	1.2%	-24%

Source: *Targeted consultation of tax authorities (24 respondents). (*) reporting countries are not disclosed to preserve the confidentiality of the information.*
Legend: *Table A) SI=significant increase; MI=moderate increase; NC=no change; MD=moderate decline; SD=significant decline; and DK=don't know. Table B) Incidence= the share of illegal cigarettes on the total actual consumption.*

Nearly half of the authorities consulted used the 'empty pack survey' method to infer the extent of illegal products consumed in their countries, so in a few cases the estimates collected from them correspond to the SUN estimates. Based on that, it can be assumed that SUN-based data are operationally fit – keeping in mind the caveats discussed - for a preliminary analysis of the magnitude and trends of illicit trade, at least until the independent methodology commissioned by OLAF will become available.[83] As described above in relation to NDL, our estimates of illegal products are based on SUN underlying data that have been re-elaborated to match with the indicator's definition

[82] M. Stoklosa, Prices and cross-border cigarettes purchases in the EU: evidence from demand modelling, Tob Control 2018;0:1-6.
[83] As described in the Methodology, alternative models used in this Study to develop own estimates based on production and trade data returned fairly incomplete results.

used in this Study, and therefore do not correspond to the final estimates laid down in the SUN reports.

Table 3.8 presents our estimates for the ***magnitude and trends of illegal cigarettes*** consumption in Member States. In particular:

- Nearly 48 bn cigarettes / year have been consumed in the EU in the 2010-16 period. According to estimates, such amount has been decreasing from more than 50 bn in 2010 to some 41 bn in 2016. The trend seems however different across MS, with notable hikes in CY, EL and SK, and a steep decline in BG, LT, DK, FI and BE.
- When compared to the average 'actual consumption' in the EU (inclusive of both legal and illegal products), the incidence of illegal cigarettes represents some 8.1% of the total. Such level had been slightly increasing until 2014 then started declining and in 2016 was almost at the same level of 2010. Similarly, in most countries the estimated incidence of illegal products seems stable. A few countries registered a remarkable increase, namely CY, EL, PL and UK, while others a significant decline, i.e. BG, EE, FI, LV, LT and RO.

Table 3.8 – Magnitude and trends of illegal product consumption across MS (2010-16)

MS	Average illegal cigarettes (bn sticks per year)	CAGR	Average actual consumption (bn sticks per year)	Incidence of illegal cigarettes on actual consumption	Variation of incidence (percentage points)	Class.	*PPACTE estimates (2010)*
AT	0.48	7%	15.22	3.1%	1.9%	Low	*0.8%*
BE	0.48	-15%	10.51	4.3%	-1.9%	Low	*..*
BG	2.49	-23%	14.17	14.5%	-16.4%	**High - down**	*18.3%*
CY	0.05	47%	1.53	3.3%	6.1%	**Low - up**	*..*
CZ	0.54	-11%	14.98	3.8%	-1.9%	Low	*10.0%*
DE	4.45	-11%	99.19	4.3%	-2.4%	Low	*..*
DK	0.16	-17%	6.76	2.2%	-1.8%	Low	*..*
EE	0.32	-7%	1.80	15.1%	-8.8%	**High - down**	*..*
EL	3.48	11%	22.99	13.3%	7.4%	**High - up**	*1.0%*
ES	3.39	3%	54.65	5.9%	1.8%	Medium	*3.4%*
FI	0.67	-15%	6.83	9.1%	-6.3%	**Medium - down**	*1.9%*
FR	7.23	0%	62.88	10.3%	0.9%	High	*2.1%*
HR*	0.19	..	6.70	5.0%	1.2%	Medium	*11.0%*
HU	0.55	-14%	9.61	5.5%	-2.0%	Medium	*7.0%*
IE	0.52	-8%	5.07	9.2%	-1.2%	Medium	*4.6%*
IT	4.63	1%	82.52	5.3%	1.2%	Medium	*1.5%*
LT	1.00	-16%	3.67	20.9%	-14.8%	**High - down**	*..*
LU	0.02	5%	1.81	1.3%	1.1%	Low	*..*
LV	0.76	-11%	2.57	22.6%	-9.2%	**High - down**	*37.8%*
MT	0.06	6%	0.83	6.9%	2.3%	Medium	*..*
NL	0.89	-11%	13.63	6.1%	-2.0%	Medium	*..*
PL	6.42	0%	47.75	12.0%	4.0%	**High - up**	*15.3%*
PT	0.22	-2%	11.24	1.9%	0.2%	Low	*0.0%*
RO	3.80	-3%	26.42	12.6%	-3.1%	**High - down**	*10.7%*
SE	0.57	-5%	6.70	7.9%	-1.3%	Medium	*18.8%*
SI	0.24	2%	4.90	4.6%	0.4%	Low	*..*
SK	0.12	16%	6.95	1.7%	2.0%	Low	*..*
UK	3.76	4%	44.75	7.9%	3.3%	**Medium - up**	*9.2%***
EU	**47.48**	**-3%**	**586.66**	**8.1%**	**0.2%**		

Source: *Author's re-elaboration of Project SUN raw dataset, and EDT.*
Legend*: CAGR=compounded annual growth rate; (..)=data missing; MS classification criteria as follows: 'high'=incidence greater than 10%, 'Low'=incidence smaller than 5%, 'Medium'=between 5% and 10%, 'up' =incidence variation in 2010-16 greater than +2.5 percentage points; 'down'=variation below -2.5 percentage points, if not specified the variation was smaller than +/- 2.5 points.*
Notes: *(*) Data for HR refer to 2013-16. (**) PPACTE data for the UK regards England only. The 'actual consumption' is equal to RfC + NDL inflow + illegal products + non-EU legal cigarettes – NDL outflow (See Figure 3.3). Unlike the SUN 'C&C' indicator, which includes also cigarettes taxed in other MS possibly 'bootlegged' across the border, in this table 'illegal products' includes only non-taxed products, with the exception of legal duty-free products.*

Another method to estimate the total actual consumption and the share of illicit products is through consumer surveys. A survey-based approach has been used, for instance, in the ***PPACTE Study***,[84] as well as in similar exercises conducted at MS level (e.g. the surveys on illicit tobacco in Ireland). This approach allows circumventing the limitations of the empty pack survey but is in turn subject to possible respondent bias.[85] In fact, as shown in Table 3.8 above, the PPACTE-based estimates of the 'prevalence of an identification of an illicit pack' in various cases differ significantly from the SUN-based estimates (especially for CZ, FI, FR and SE).[86] Furthermore, consumer surveys approaches require very robust estimates of the smoking prevalence and of the frequency of consumption, i.e. the number of cigarettes smoked per day by an average smoker. These variables can be measured with some degree of accuracy at MS level but, as discussed in the next section, there are quality and comparability issues with these variables at EU level.

A fairly comprehensive source in this respect is the ***Eurobarometer survey*** on the attitudes of Europeans towards tobacco (and electronic cigarettes), which is conducted approximately every second year. On the one hand these surveys offer the advantage of regular overtime measurements, but on the other hand the size of population samples is relatively small, so the level of accuracy is moderate. In this Study, we have used the Eurobarometer surveys to develop estimates on the actual consumption of cigarettes and thereby cross-check the above SUN-based estimates. The results, summarised in Figure 3.4 below, shows that in aggregated terms, the actual consumption estimated on the basis of Eurobarometer and the figures based on SUN estimates present some differences. Eurobarometer-based estimates of illegal products are historically smaller. This is particularly evident with 2016 estimates, where Eurobarometer-based total consumption would even fall below the amount of legal cigarettes releases for consumption in the EU. This is likely the result of the abovementioned respondent bias, and the fact that, when interviewed, smokers may tend to under-report their consumption habits (daily frequency, number of sticks per day etc.). Conversely, in terms of trend, the Eurobarometer and the SUN-based series appears more coherent in indicating a general decline in the actual consumption (inclusive of illegal products), although according to Eurobarometer data the decline seems steeper.

The special Eurobarometer #443[87] investigated qualitatively the frequency of episodes where smokers are offered black market products and the perceived easiness of availability of such products. The outcome obviously differs radically between countries but, interestingly, a positive correlation (0.75) is found between the SUN-based estimates of illegal product consumption and the above frequency of offering episodes.

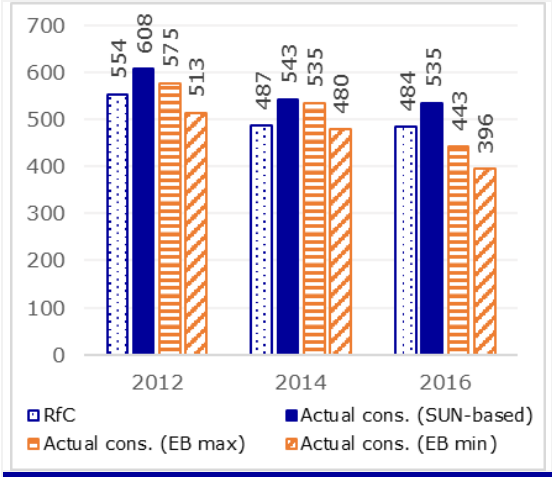
The ***Eurostat surveys*** on the final consumption expenditure of households can provide another reference for triangulating the above estimates on illicit trade, although for methodological reasons it has to be taken with caution. Figure 3.4.C below compares the trend in the estimated nominal expenditure on tobacco by EU citizens with the estimated value of the 'recorded' sales in the EU (i.e. the sum of the estimated market values of the MS, irrespectively of 'cross-border shopping'). Besides some comparability

[84] Joossens L, Lugo A, La Vecchia C, et al. Pricing Policies and Control of Tobacco in Europe (PPACTE) project: cross-national comparison of smoking prevalence in 18 European countries. Tob Control 2014;23:e17–e23.
[85] To mitigate respondent bias, certain surveys – e.g. PPACTE – required respondents to actually 'show' the cigarette pack to the surveyor. This approach is not exempted from drawback, such as the possible inclination to turn down such request by owners of non-genuine packets (some 20% of respondents in the PPACTE survey refused to show), and the partly subjective criteria to establish the illicit origin of the products such as self-declaration of illegal origin and price paid, and inappropriate tax stamp or health warning, which might possibly denote also NDL products.
[86] The PPACTE estimates are actually not comparable with SUN's since include also FCT packets. Also the period reported in Table 3.8 is different.
[87] Special Eurobarometer 443, Public perception of illicit tobacco trade, July 2016.

issues[88], the disparity between these metrics suggest the existence of a certain share of expenditure not matched by 'recorded' sales, so possibly represented by illegal products. As the Figure below suggests, the incidence of such unrecorded expenditure was much greater than our estimates on the incidence of the sole illegal cigarettes before 2013 but substantially aligned with them after that date. Since the drop was rather abrupt, measurement issues cannot be ruled out.

Figure 3.4 – Estimated magnitude of illicit trade based on survey data

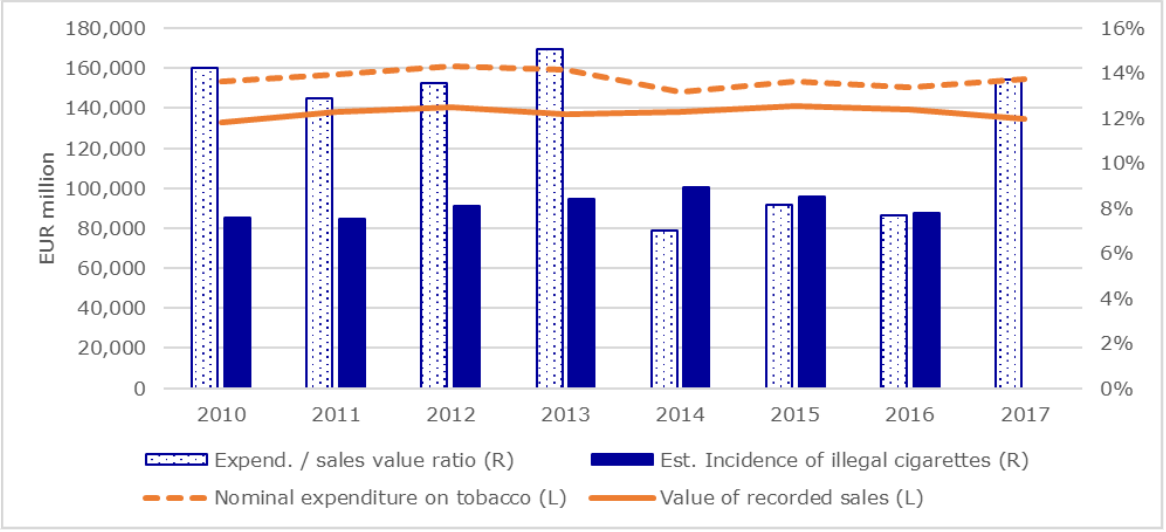
A) Estimated actual consumption in the EU (as compared to SUN estimates)



B) Perceived availability and frequency of offering of illegal products among smokers

	Min	EU median	Max	Correlation with SUN estimates
Frequency of offerings of black-market products	6% (LU)	20%	56% (LV)	High= 0.761
Respondents perceiving illegal products as easily available	3% (NL)	9.5%	18% (HR)	Very low= 0.008

C) Comparison between the illicit trend of cigarettes and the nominal expenditure on tobacco according to Eurostat



Source: *Author's estimates based on Eurobarometer 385, 429, 458, 443, Project SUN raw datasets, EDT and Eurostat.*
Legend: *RfC=release for consumption; EB=Eurobarometer; (R)=right scale; (L)=left scale.*
Notes*: For the actual consumption estimates according to Eurobarometer two values have been estimate (EB min and EB max) based on different assumptions on the average consumption of non-daily smokers. The 'nominal expenditure on tobacco' is based on Eurostat's purchasing power parities datasets. The 'value of recorded sales' is estimated by the Author based on market volumes and WAP levels for the different categories of products. It should be noted that the estimated incidence of illicit trade refers to cigarettes only, while the expenditure / sales value ratio refers to all tobacco products, so the two indicators are not fully comparable.*

More than half of respondents to the tax authorities' consultation reportedly extrapolates statistics on the magnitude of illicit trade from ***seizures data***. This method has an

[88] For instance, the expenditure includes non-EU legal and duty-free products (possible exceeding 3% of the market), smokeless tobacco, papers and filters for the rolling of cigarettes, not included in the market value estimates.

intrinsic low degree of precision - since there is no obvious relation between the volume of products seized and the overall amount smuggled – and is especially poorly informative as regards the trend, since authorities' enforcement capacity evolves continuously (and so does smugglers' routes and *modus operandi*). So, seizure data (Figure 3.5 below) can only serve as a gross indication of the possible order of magnitude of smuggling and to cross-check the estimates based on surveys and/or other models. The results of the analysis are as follows:

- If compared with our SUN-based estimates of illegal consumption, the seizure trend slope appears largely compatible and moderately steeper.
- Estimates have to be taken with caution country-wise, so we have used the average of the period for comparison. A positive correlation coefficient has been found between data distributions suggesting that overall seizures can represent a fairly useful proxy of overall illegal consumption.

For completeness, it is worth reporting that estimates on illicit trade volumes are also elaborated by Euromonitor International. The reliability of this source was however questioned by scholars, primarily for the absence of a transparent and detailed description of data sources and methodology used. In particular, it is noted that "*Euromonitor's reliance on tobacco industry intelligence (…) may lead to biased estimates*", so in this sense this source does not offer clear advantages as compared to Project SUN, while it presents some shortcomings, i.e. the unavailability of detailed estimates broken-down by country of origin, the recalculation of historical estimates overtime, and the mismatch between their 'legal consumption' figures and the official release for consumption data.[89] Nonetheless, ***the illicit trade estimates used by DG SANTE*** in the impact assessment underlying the implementing and delegated acts for the 'Track-and-Trace' system under the TPD2 are based on Euromonitor International estimates.[90] In the period 2010-16 the average incidence of illicit trade on the total consumption – according to this source – has been of 10.9%. Based on Euromonitor definition of 'illicit trade'[91] it seems, however, that these estimates include also non-legitimate (i.e. abusing the 'private use' principle) cross-border flows of NDL cigarettes, which are in our definition are treated separately. If so, such estimates would not differ from those used in this Study,[92] and – incidentally – appear only marginally different from SUN's estimate for C&C products incidence (contraband and counterfeit, including 'smuggled' NDL) that is of 10.4% on average for the same time period.

[89] *"Euromonitor International's reliance on tobacco industry intelligence and an opaque modelling process may lead to biased estimates, especially if information provided by industry sources is influenced by their common narrative that increases in excise taxes cause increases in illicit trade. We recommend that investigators exercise increased caution in using Euromonitor data for studies on illicit trade and that new well-documented and verifiable methods are developed to monitor illicit trade that are not dependent on industry data."* Blecher E, Liber A, Ross H, et al., 'Euromonitor International data on the illicit trade in cigarettes', Tob Control 2015; 24:100–101. Similarly: "*The difference between Euromonitor and PPACTE is likely to reflect both the additional countries included in Euromonitor and that Euromonitor data are based in part on industry data.*" Gilmore A.B., Rowell A., Gallus S., Lugo A., Joossens L. and Sims M., 'Towards a greater understanding of the illicit tobacco trade in Europe: a review of the PMI funded 'Project Star' report'. Tob Control, 23, e51-e61, 2014.

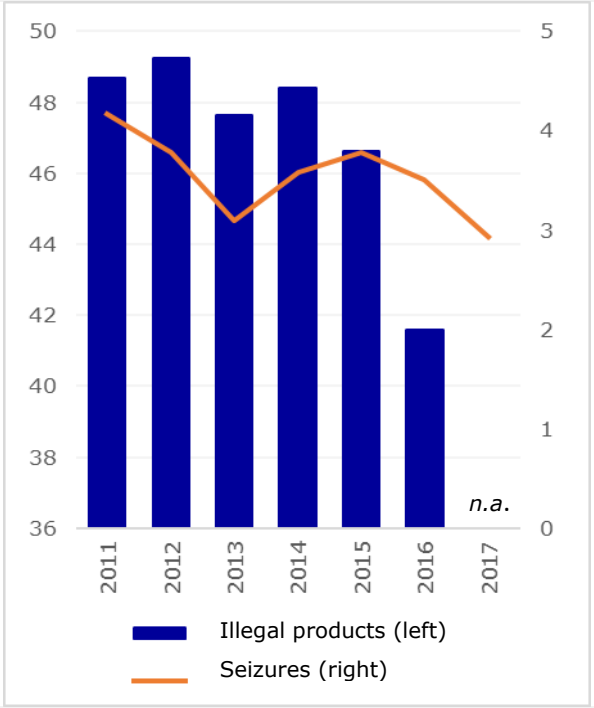
[90] Commission Implementing Regulation (EU) 2018/574 on technical standards for the establishment and operation of a traceability system for tobacco products; Commission Delegated Regulation (EU) 2018/573 on key elements of data storage contracts to be concluded as part of a traceability system for tobacco products; Commission Implementing Decision (EU) 2018/576 on technical standards for security features applied to tobacco products.

[91] In the Euromonitor International categorisation, illicit trade cigarettes are '*defined as non-duty paid cigarettes (includes smuggled & counterfeit/fake products combined*' but not including '*legitimate cross-border sales [that] are considered duty-paid'*.

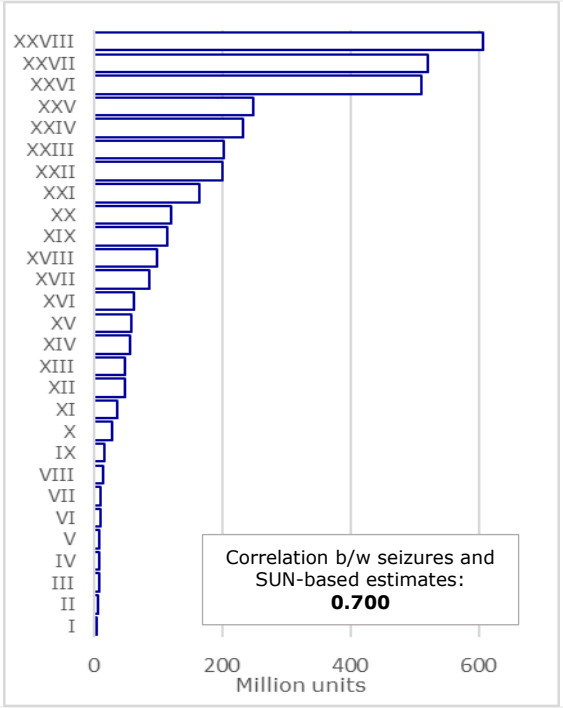
[92] In fact, in our Study, we have estimated the incidence of illegal products in 2010-16 at 8.1% and the incidence of the total NDL (irrespective of possible abuses) at 6.2%. It is sufficient that one-third of the NDL is abusing the private use principle, to reach the same Euromonitor estimates.

Figure 3.5 – Seizure statistics and the estimated size and trends of illegal cigarettes consumption

A) Seizures trends and estimated illegal consumption (2011-17, bn units)



B) Average volume of seizures in MS* (2011-17) and correlation with estimated illegal consumption



Source: *Author's elaboration based on: tax authorities (24 respondents) consultation data on seizure - (*) reporting countries are not disclosed to preserve the confidentiality of the information - OLAF seizure data, and SUN raw dataset. Targeted consultation of tax authorities.*
Legend*: EB=Eurobarometer; n.a.=not available.*
Notes: *Seizures data are based on MS reporting to the consultation, complemented – in case of gaps – with OLAF aggregated estimates. The estimates on illegal consumption are based on the elaborations presented in the previous sections.*

➢ UNRECORDED CONSUMPTION OF OTHER TOBACCO PRODUCTS

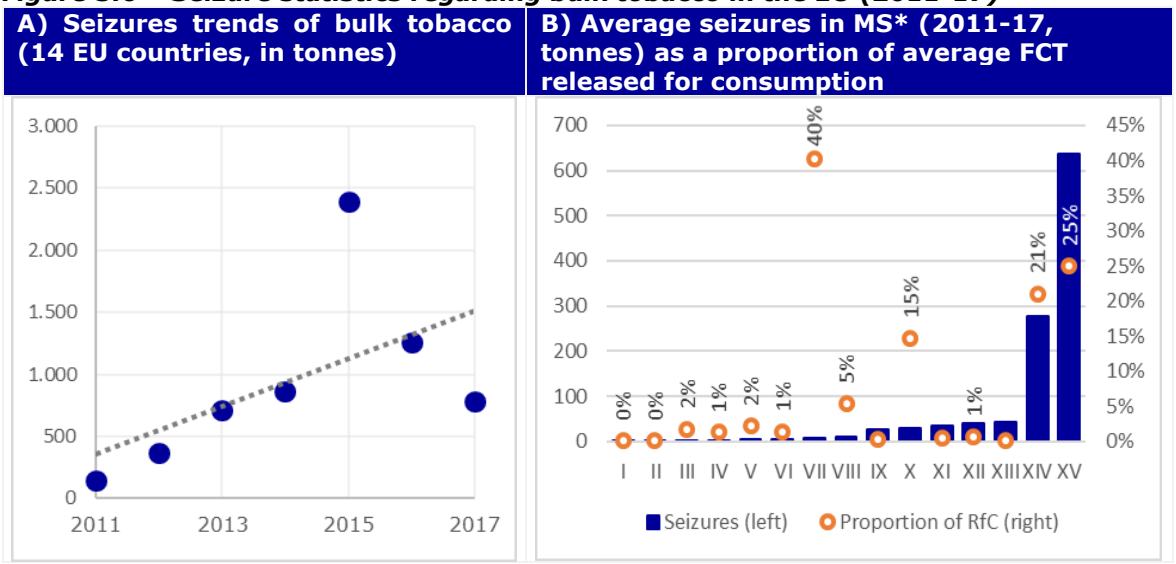
Comprehensive quantitative data on the unrecorded consumption of products other than cigarettes are virtually non-existent, so only rough estimates and qualitative assessments are feasible[93]. Overall, the result of the consultation indicates a general concern among national tax authorities for the growing illegal consumption of such products, quite widespread geographically and between high- and low-tax MS. Some nine MS reported a perceived increase in five cases qualified as 'significant'. For four respondents the phenomenon is stable, in one case it is seemingly decreasing, and the remainders did not report any view on it. Qualitative feedbacks indicate the issue mostly regard cut tobacco sold 'in bulk'[94], and water-pipe tobacco in its flavoured or 'unflavoured' variants.[95]

In fact, the seizures of ***bulk tobacco*** – i.e. semi-processed tobacco sold outside legitimate channels avoiding taxes and which is smoked as roll-your-own cigarettes - seem on a rising trend (Figure 3.6 below). Assuming that the correlation found for

[93] Very few countries reportedly monitor this trend through ad hoc consumers' surveys. An example is Ireland's 'Illegal Tobacco Products Research Surveys', which include fine cut tobacco since 2013.
[94] In response to a Parliamentary Question, the rising issue of 'bulk tobacco' was also recognized by the Commission. See: Answer given by Mr Oettinger on behalf of the Commission on question ref. E-003933/2017 (April 2017).
[95] Including the practice of illegally manufacturing of low-quality water pipe tobacco by simple mixing of raw tobacco and food grade flavours, which is reported in certain southern Europe and Balkans region countries.

cigarettes is valid also for bulk tobacco, this would confirm the perception that illegal consumption is also increasing. As discussed, it is unfeasible to extrapolate the size of illegal consumption from seizures data, however comparing the volume of seizure to the total amount of FCT released for consumption can provide a quite straightforward indicator of the relative dimension of the problem. As Figure 3.6.B below shows, in a few MS the volume of seizures represents a major share of the FCT legal market. Obviously, illegal bulk tobacco may be destined to 'hand-rolled' consumption, but also to the manufacturing of other products (cigarettes, water-pipe tobacco, *snus* – in Sweden, etc.).

Figure 3.6 – Seizure statistics regarding bulk tobacco in the EU (2011-17)



Source: *Author's elaboration based on: tax authorities' consultation (24 respondents) - (*) reporting countries are not disclosed to preserve the confidentiality of the information - and EDT data.*
Legend*: RfC= release for consumption.*
Notes: *Figure B compares the volume of FCT's seizures in tonnes (left scale) with its proportion on the total RfC (right scale) in reporting MS (horizontal axis).*

The first systematic attempt to measure the consumption of illegal bulk tobacco in Europe was carried out in an industry-commissioned study implemented by Crime&Tech in 2016. The study covered 15 Eastern Europe markets, of which nine EU MS (BG, CZ, EL, HR, HU, PL, RO, SI, SK), and intended to shed light on '*how much illicit cut tobacco is consumed, and where*'.[96] The estimates from that study, reported in Table 3.9 below, have been cross-checked with alternative rough estimates extrapolated from Eurobarometer's data on the extent of FCT consumption.[97] The tentative outcomes would indicate that:

- Both estimates indicate a significant (in absolute terms) consumption of illegal bulk tobacco in PL, EL and HR (more than 1000 tonnes / year) and potentially also HU, BG and RO (more than 500 tonnes).
- Overall, in these sample of MS, illegal consumption would account for some 46% of the total domestic consumption (net of NDL flows) of hand-rolled products.

[96] Crime&Tech, 'Bulk Tobacco Study 2015', 2016. The study has been carried out for the four major tobacco manufacturing industries, namely British American Tobacco, Imperial Tobacco Limited, JT International and Philip Morris International Management. To the best of our knowledge results have not been validated by any independent entity and therefore needs to be taken with caution.
https://www.crimetech.it/media/BulkTobaccoStudy2015.pdf

[97] As in the case of cigarettes, extrapolating estimates on the actual consumption from Eurobarometer survey data presents numerous and significant limitations. In addition to the already-mentioned respondent bias, and small samples size, in the case of FCT two more assumptions are needed: i.e. that the smoking frequency (i.e. number of hand-rolled sticks per day) is the same of cigarettes, and that a standard equivalence of 0.75g per stick can be applied in all markets. Due to these numerous assumptions, the estimates provided should be considered as absolutely tentative.

- There is a quite strong correlation between the results of the two sets of estimates (coefficient: 0.885)

The consumption of illegal bulk tobacco in Western Europe has not been investigated so far. According to some unpublished industry data, in this region illegal bulk tobacco would amount to in excess of 18,000 tonnes of which the large majority consumed in the UK (57% of the total). In ES, FR and possibly NL, such consumption would possibly exceed 1,000 tonnes / year.

Table 3.9 – Estimated volume of illegal bulk tobacco based on Crime&Tech estimates (2016) and Eurobarometer-based estimates (in tonnes)

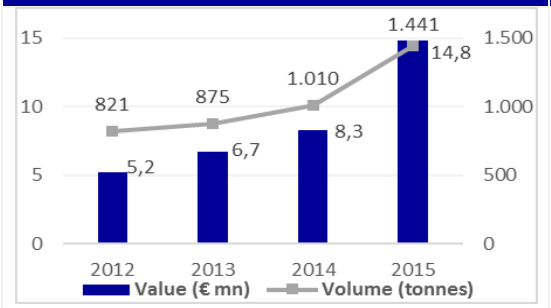
MS	RfC	*Crime&tech* NDL	*Crime&tech* illegal consumption	EB-based total consumption	EB-based Illegal consumption	Illegal consumption average estimate
BG	194	3.3	625	1,002	808	717
CZ	1,318	15	5	1,486	168	87
EL	2,541	131	846	5,235	2,694	1,770
HR	168	8	899	1819	1,651	1,275
HU	5,565	0	993	4,610	-955*	993
PL	2,543	19	4,921	7,306	4,763	4,842
RO	16	104	406	786	770	588
SI	171	13	0	387	216	108
SK	67	17	184	631	564	374

***Source**: Crime&tech 2016, EDT, and Author's elaborations based on Eurobarometer 458.*
***Legend:** EB=Eurobarometer; RfC=releases for consumption (of cigarettes).*
***Note:** Eurobarometer-based estimates have been calculated as the difference between the estimated actual consumption (survey-based) and the amount of FCT released for consumption based on EDT data. This evidently assumes that the latter is entirely (or so) consumed in the market where it is released for consumption. Negative values for the EB-based estimates - such as HU (*) - can be interpreted as markets where this assumption does not hold true and there is a significant amount of RfC outflow to other MS (possibly exceeding the extent of domestic illegal consumption). For this reason, in such case the average estimate (last column) does not consider the EB-based estimate.*

As regards ***water-pipe tobacco***, an attempt to estimate the magnitude of illicit trade was made under EA 2018. Estimates on the overall magnitude of the problems were collected from relevant economic operators and, in few MS, from tax authorities, but in most cases the figures provided were very rough and tentative. Such estimates were further triangulated with OLAF estimates. Water-pipe tobacco is mostly imported from non-EU countries (mostly Jordan, UAE, Turkey, Egypt and USA) or brought-in by travellers from production regions. As Figure 3.7 shows, legal imports are on the rise suggesting a growing demand (confirmed also by national-level surveys on consumption). But legal imports account only for a small share of the total consumption, which in some MS can be 10 times bigger. Overall, the EA 2018 estimated the total consumption at about 5,000 tonnes in 2016 of which some half sourced from illegal channels. This estimate turned out coherent with the figures more recently reported to the Commission by one of the largest operators in the EU, which estimated the overall consumption around 4,000 tonnes and illicit trade about 50% of it. Illicit trade seems linked both (1) to the difficulty of monitoring the specific channels of import / distribution / consumption ('shisha bars'), which are different from other tobacco products, and (2) to the significant economic incentives for smuggling provided by the high level of excise duty applied, and its impact on retail price of legal products.

Figure 3.7 – Estimated market and illicit trade of water pipe tobacco in the EU

A - Estimated import of water-pipe tobacco in the EU



B – Total consumption and estimated illicit consumption in a sample of MS and the EU (2016)

Country	Estimated total market (tonnes 2016)	Estimated illicit market (tonnes 2016)
DE	2,400	600 - 1,400
UK	200	160 -180
IT	100	90
SE	200	160
Other	2,100	750 – 1,000
EU	**5,000**	**Ca. 2,500**

Source: *EA 2018. (A) EU - Market Access Database; (B) Industry estimates and author's calculations.*

3.2.3 Smoking prevalence

This section addresses the question on how has overall smoking prevalence evolved in the period examined. The section is structured into three main parts:

- first of all, we provide an outline of the main features of smoking prevalence in the EU with focus on its specificities;
- this is followed by a review of the notable developments in terms of smoking habits, including the trends in the consumption of products other than cigarettes like fine cut tobacco and waterpipe tobacco;
- finally, we have gathered the information available on MS-level trends highlighting the uncertainties and inconsistencies that exist with granular data.

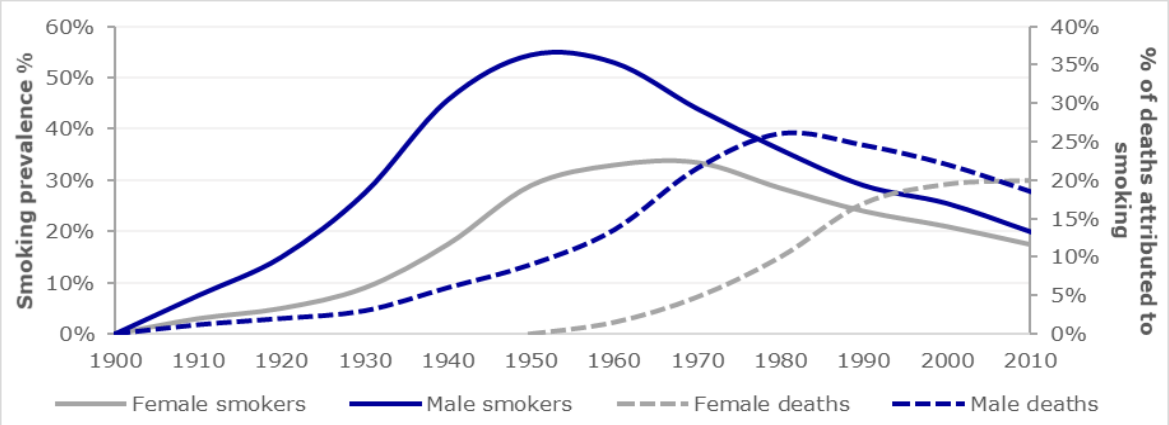
➢ OVERALL FEATURES OF SMOKING PREVALENCE IN THE EU

The evolution of smoking prevalence trends in high-income countries has generally followed a fairly consistent path that is commonly called the *tobacco epidemic* or the *cigarette epidemic* after the title of the seminal study that first popularised the concept in 1994[98]. In this model, prevalence first increases among men, followed a couple of decades later by a parallel but smaller increase among women and then plateaus and starts decreasing on account of a combination of factors. The declining phases of the epidemics are believed to be particularly steep because of a series of self-reinforcing factors. For instance, cultural de-normalization would make smoking initiation more unlikely and increase the likelihood that tobacco control policies elicit social and political support thereby further hindering the creation of cohorts of new smokers. Another general feature of the tobacco epidemic, is that smoking initially takes up among the higher socioeconomic groups but then spread among the lower groups, in connection with their lower health literacy and awareness of harmful effects.[99] Women, however, appear to be more resilient to this reversal, which contributes to the abovementioned convergence of smoking prevalence rates between sexes. Smoking-related mortality follows a broadly similar pattern but delayed of some decades, as shown in Figure 3.8 below.

[98] See Lopez, A.D., Collishaw, N.E., and Piha, T. *A descriptive model of the cigarette epidemic in developed countries*. Tobacco Control. 1994; 3: 242–247. An update of the study in the light of more recent developments can be found in Thun, M., Peto, R., Boreham, J., and Lopez, A.D. *Stages of the cigarette epidemic on entering its second century*. Tobacco Control. 2012; 21: 96–101

[99] De Walque D. *Education, information, and smoking decisions: evidence from smoking histories, 1940–2000*. The World Bank Web site. http://elibrary.worldbank.org/doi/book/10.1596/1813-9450-3362.

Figure 3.8 - Stages of the tobacco epidemics in the different decades according to Lopez and others.



Source: *Lopez, A.D., 'Stages of the cigarette epidemic on entering its second century'. Tobacco Control. 2012*

In line with the forecasts of the model the estimated age-standardized smoking prevalence in men and women has been substantially decreasing since the 1980s in all high-income countries including Western Europe.[100] However, there are major geographical disparities in the EU, and prevalence rates in Eastern and Southern Europe are still fairly high as compared to world's average, also because the tobacco epidemics there started later than in Western Europe. Secondly, while male smoking prevalence has been substantially decreasing in recent years, female smoking prevalence has started showing some signs of decrease only recently and only in certain Member States, but remains three times higher than world's average.[101] In many EU countries the gap between male and female adults has been shrinking until reaching as low as less than 5% or even levelling off and reversing in Nordic countries and the British Isles. Finally, tobacco use among adolescents is also higher in the EU than in the rest of the world, with a few MS reporting prevalence rates close to adult's ones.

While consistent patterns in the evolution of smoking prevalence over time can reasonably be found - at least in high-income countries - smoking intensity can vary significantly without an apparent rationale.[102] This is believed to depend on a congeries of causes encompassing country-specific historical factors impacting on local cigarette affordability and accessibility,[103] as well as on characteristics of the products sold locally, such as the nicotine content of local brands and the different tobacco blends used.[104]

[100] In the United Kingdom, smoking rates dropped from over 80% in men in the 1950s and some 40% in women in the 1970s to some 20% in both sexes now.

[101] What makes smoking patterns in the EU almost unique is that in the rest of the world there remain strong cultural (and sometimes religious) restrictions against female (and in some cases also adolescent) smoking.

[102] Moreover, since reduction in smoking intensity defined as the number of cigarettes smoked per capita is a public health objective of relatively lower importance in terms of harm reduction, the subject has been paid less attention and related studies have been much more limited and scattered far between over time. It has however been remarked that in countries that have managed to reduce smoking prevalence those who continue to smoke are often 'heavy smokers'. So, smoking intensity does not seem to align with smoking prevalence trends but might be actually inversely correlated. High levels of smoking intensity increase nicotine dependence and therefore may work as an empirical indicator of the likelihood of success of policies to encourage smoking cessation among existing cohorts of smokers in the years ahead. Source: Ng, M., Freeman, M.K., Fleming, T.D. et al., 'Smoking prevalence and cigarette consumption in 187 countries, 1980–2012'. JAMA. 2014; 311: 183–192

[103] The huge increase reported in China is attributed to the growing affordability of cigarettes there in income-related terms.

[104] Baseline age-standardised research carried out with reference to the 1984-2012 period shows that when the Directive 2011/64 entered into force no EU country could be considered a low-intensity smoking country (less than 10 cigarettes per day on average). Most of them could be considered at an intermediate smoking intensity level (average from 10 to 20 cigarettes per day) and some of them - namely Ireland, Sweden, Finland, Denmark, the Czech Republic, Slovakia, Slovenia, Croatia, Italy and Greece - at a high smoking intensity level (more than 20 cigarettes per day on average). Ng, M., Freeman, M.K., Fleming, T.D. et al., 2014.

According to the model described in Figure 3.8, the smoking intensity tends to increase in the latest stages of the epidemics, as 'heavy smokers' are reported to be more resilient to quit smoking.

➢ TOBACCO PRODUCTS OTHER THAN CIGARETTES

Although conventional cigarette still represents by far the most important component of tobacco consumption, in recent years other tobacco products have raised public health concerns for their popularity among the youth, and namely waterpipe tobacco and fine cut tobacco. In this respect, some public health experts interviewed in the framework of the Study envisaged the possible appearance of a separate tobacco epidemics, not only in terms of mere product substitution, but also as distinct cultural phenomena with own dynamics.

- ***Water-pipe tobacco***. Water-pipe tobacco (also known as hookah, narghile or shisha) has attracted considerable attention over the last few years following a notable spike in consumption in Middle East, Northern Africa and some parts of Southeast Asia, which subsequently spilled over also to Europe and the US. In the Middle East, waterpipe tobacco would have reportedly already replaced cigarettes as the most popular method of tobacco use among youth, and in several other parts of the world, it is becoming second only to cigarettes[105]. There is very patchy and fragmented evidence on the prevalence of waterpipe tobacco consumption in EU countries for various reasons. First of all, a sizeable number of waterpipe users may not consider themselves as 'smokers' so they might not be captured in smoking prevalence survey (unless specific terminology is used). Then, the definition of 'current smoker' designed for cigarettes (one who smoked within the past 30 days) is partly unfit for the typical consumption patterns of waterpipe tobacco.[106] What is also not captured well by using cigarette-based definitions and concepts is that the average time of waterpipe smoking session can be as long as one hour compared to a few minutes for a cigarette, so information about time spent in smoking (a proxy for smoking intensity) should be part of the assessment.

  Having in consideration these caveats, the waterpipe tobacco consumption prevalence as registered by the Eurobarometer survey has followed a mixed pattern over the last decade.[107] In fact, 'ever waterpipe use' among all age classes has seemingly increased by nearly 5% points from 11.6% in 2009 to 16.3% in 2014 before dropping to 12.9% in 2017. Huge variations between EU countries are apparent, with 'ever use' prevalence peaking in Scandinavian countries, the Baltics (41.7% in Latvia) and to a less extent in Austria, Czech Republic and the Balkans region, except Croatia where the rate is one of the EU lowest. This kind of smoking often takes place in social settings and is known to particularly affect the youth. When measured with reference to the 18-25 age group the 'ever use' prevalence is twice as high as in the total population (i.e. some 28%-34%). It also seems to correlate with a higher level of education but not necessarily with higher levels of income. Most importantly, waterpipe tobacco is close to becoming the second most

[105] Wasim Maziak, Ziyad Ben Taleb, Raed Bahelah, Farahnaz Islam, Rana Jaber, Rehab Auf, Ramzi G Salloum, *The global epidemiology of waterpipe smoking,* Tobacco Control October 2014; Jawad M, Charide R, Waziry R, Darzi A, Ballout RA, Akl EA (2018) *The prevalence and trends of waterpipe tobacco smoking: A systematic review*. PLoS ONE 13(2): e0192191. https://doi.org/10.1371/journal.pone.0192191

[106] A systematic baseline review of the studies looking at the epidemiology of waterpipe smoking globally, could not provide comparative maps of waterpipe use based on a single unified definition. Akl EA, Gunukula SK, Aleem S, et al. *The prevalence of waterpipe tobacco smoking among the general and specific populations: a systematic review*. BMC Public Health 2011;11:244.

[107] The Eurobarometer sample in such a context can be considered as quite far from ideal because it is limited to 28,000 interviews EU-wide and might have problems in covering ethnic minorities. This compounds to anecdotal evidence of huge disparities within countries also at the local level that make representative sampling even more complex to achieve.

popular smoking initiation product in the EU, ranking immediately after fine cut tobacco. 'Regular use' of waterpipe tobacco represents some 10% of total smoking prevalence in Austria (3.6%), Latvia (2.5%) and Belgium (2.0%).

- ***Fine cut tobacco***. Fine-cut tobacco has been on a growing trend in the EU as a driver of smoking prevalence for a longer period of time. A baseline survey carried out in 2010 within the framework of the EU-funded PPACTE project showed that 10.4% of current smokers (12.9% of men and 7.5% of women) were 'predominantly' FCT users (i.e. FCT accounted for more than half of cigarettes smoked) and as high as 8% were exclusively FCT smokers.[108] As seen, there are substantial differences between EU countries in the prevalence of FCT consumption and there are preliminary indications that it has already started plateauing. In any case, the countries of more widespread FCT smoking according to PPACTE data were the UK (27.3%), France (16.5%), Finland (13.6%), Spain (13.2%) and Greece (13.1%).

  Higher affordability seems to be one of the drivers behind the spread of this type of consumption among the youth and the lower income layers. Although there are also MS reporting the spread of FCT among those with a high educational level and a high income, which cautions against easy generalisations.

Finally, pipe tobacco and cigars have remained a marginal component of smoking prevalence across the EU, accounting for less than 1% of total prevalence - a figure that has been constantly decreasing since the younger cohorts seldom enter this market. A partial exception is represented by the occasional hikes in the consumption of the so-called 'borderline' cigarillos - as surrogate of cigarettes – that has been registered in the past years especially in DE, HU, DK, ES and the Baltic countries.[109]

➢ QUANTIFICATION AND COMPARABILITY ISSUES AT THE MS LEVEL

While broad trends for the EU region as a whole are fairly clear, a more detailed analysis of country level trends is made difficult by harmonisation and comparability issues, as well as disparities in the quantity and quality of the data available from the different Member States. A clear example is the ***FCTC monitoring systems***, which is based on national statistics on smoking prevalence directly reported by the parties (see Table 3.10 below).[110] These statistics are collected at different intervals in time with different sample size and sampling techniques and sometimes with reference to different age groups. Despite the efforts deployed by the WHO to enhance comparability, e.g. by promoting common questionnaire and harmonised definitions of indicators,[111] the

[108] S.Gallus; A. Lugo; S.Ghislandi; C. La Vecchia; A. B. Gilmore, 'Roll-your-own cigarettes in Europe: use, weight and implications for fiscal policies', European Journal of Cancer Prevention. 23(3):186–192, May 2014
[109] See: EA 2018 for a review of country-level trends in 'borderline' cigarillos.
[110] Countries are invited to participate into the WHO Global Adult Tobacco Survey (GATS) or in the Global Youth Tobacco Survey (GYTS), as well as to pool their data in the longitudinal International Tobacco Control Policy Evaluation Project.
[111] The WHO has developed a manual for Tobacco Survey Questions (TSQ) as a tool to harmonise and standardise these survey questions in line with standards used by the WHO itself in its global tobacco surveys. Currently, 73 countries worldwide have integrated TQS into their national surveys. The WHO STEP wise approach to Surveillance (STEPS) also integrates the TQS instrument and allows countries to generate all TQS indicators while processing data. The WHO recommends that these surveys should be repeated at least every five years to monitor trends, but these are usually available on a shorter timeframe, not to say often on an annual basis particularly in Western Europe.

country-level figures reported to the FCTC still present various methodological and measurement disparities[112] and shortcomings[113].

Table 3.10 - Current and daily smoking prevalence as reported by MS to the FCTC (% of the reference population, latest available year)

MS	Current smoking prevalence			Daily smoking prevalence			Age range		Year
	Male	Female	TOTAL	Male	Female	TOTAL	From	To	
AT	30.2	24.0	27.0	22.5	18.7	20.6	15	99	2015
BE	26.2	19.9	23.0	21.6	16.4	18.9	15	-	2013
BG	41.9	33.1	34.7	36.5	28.5	32.4	20	100	2014
HR	35.3	27.1	31.1	31.8	23.4	27.5	15	-	2014
CY	48.2	24.7	36.1	44.5	21.4	32.7	15	65	2016
CZ	35.0	22.5	28.6	23.8	15.6	19.6	15	100	2016
DK	22.0	21.0	22.0	16.0	16.0	16.0	15	100	2017
EE	39.3	22.3	29.1	29.9	15.5	22.3	16	64	2016
FI	26.2	20.1	23.1	14.3	11.9	13.0	20	64	2017
FR	39.0	31.5	35.1	33.0	26.0	29.4	18	75	2016
DE	27.0	20.8	23.8	20.7	16.2	18.4	18	99	2014
EL	39.0	26.5	32.5	33.5	21.6	27.3	15	85	2014
HU	33.4	22.2	27.5	31.5	20.8	25.8	15	-	2014
IE	25.0	20.0	22.0	20.0	17.0	18.0	15	100	2017
IT	24.8	15.1	19.8	22.4	13.3	17.7	15	100	2015
LV	..	..	..	48.4	19.5	33.0	15	74	2016
LT	42.2	17.2	27.2	33.3	12.2	20.8	20	64	2014
LU	23.0	18.0	20.0	17.0	13.0	15.0	15	-	2016
MT	27.5	20.7	..	23.3	17.0	20.1	15	100	2015
NL	28.9	19.5	24.1	21.7	15.6	18.6	18	100	2016
PL	30.0	21.0	25.0	29.0	20.0	24.0	15	-	2017
PT	27.8	13.2	20.0	23.5	10.9	16.8	15	100	2014
RO	39.2	12.4	25.3	31.8	8.2	19.6	15	-	2014
SK	40.0	32.0	36.0	34.0	24.0	29.0	18	100	2014
SI	27.5	21.2	24.3	21.8	16.0	18.9	15	95	2014
ES	30.4	20.5	25.4	27.6	18.6	23.0	15	100	2014
SE	14.0	14.0	14.0	8.0	10.0	9.0	16	84	2016
UK	17.7	14.1	15.8	..	..	..	18	100	2016

Source: *FCTC Global Progress Report 2018.*[114]
Legend: *(..)=not available; (-)=no age limit established.*

The ***WHO statistics*** published under the framework of the ***Global Health Observatory*** (GHO) facility, partly address the matter by means of age standardisation and, as discussed, promoting the adoption of consistent definitions and methodologies. Still, they remain based on country self-reporting, with the ensuing issues of different periodicity, population of reference etc. Particularly sophisticated techniques for enhancing the comparability of self-reported data have been adopted also by studies aimed at quantifying the ***burden of disease attributable to smoking***. At times, these have preferred the 'daily smoker' rather than the 'current smoker' indicator, since the

[112] Several explanations have been attempted of these discrepancy patterns. First of all, participation rates are not always known and when known at times they hardly achieve 70% of the sampled. A bias may arise as non-respondents could be particularly significant in high or low smoking prevalence subgroups. Moreover, it turned increasingly clear that the use of interviewer-administered, postal, internet or telephone-based survey methods was likely to influence results. In particular, internet or telephone-based tend to exclude the relatively disadvantaged (and high smoking prevalence) segments of the population. Finally, since about 5% of people describe themselves as occasional smokers, the distinction between regular and occasional is not always clear and possibly suffers from cultural bias. It was also found that excluding non-daily smokers from the overall prevalence figure would lead to substantially lower prevalence estimates. Inclusion or exclusion of pipe and cigar smoking made little difference to the figures, but nevertheless resulted in slightly higher overall prevalence estimates if included. Differences in the age range surveyed were also considered as a potential source of discrepancy, as smoking in the very old is uncommon, so inclusion of individuals in these age ranges will tend to reduce prevalence estimates.

[113] For instance, under the FCTC Surveillance system there is no such thing as a monitoring of substitution between smokers and users of other tobacco products, so no data are available under the Treaty to understand how many former or never smokers have resumed tobacco or nicotine consumption by means of the consumption of smokeless products.

[114] See: https://www.who.int/fctc/reporting/party_reports/who-fctc-annex-3-tobacco-use-prevalence.pdf

former better represents the core group of the smoking-addicts that is of primary interest for public health purposes and is also less prone than the latter to disparities of interpretation.[115] This is also the approach that the ***OECD*** follows in its public health database.

The EU-wide ***Eurobarometer*** surveys on the attitudes of Europeans towards tobacco were intended primarily to overcome the methodological disparities affecting national surveys by means of a common questionnaire and harmonised sampling and analytical methods.[116] These surveys are however not exempted of limitations, primarily in relation to the relatively small size of samples, which are generally limited to 1,000 individuals and not necessarily weighed. While this sample size can capture broad trends in the overall population, it is insufficient to describe subtler and more complex trends within specific sub-populations, be it related to gender and age groups or different socioeconomic groups. At these levels, the statistical margin of error is high and partly hinders the analytical usefulness of the data.[117]

To remedy this state of things, the establishment of a harmonised and comparable set of smoking prevalence indicator has ranked high among the priorities of the EU ***European Core Health Indicators*** (ECHI) initiative. To this end, specific questions on tobacco consumption and has been included in the core modules of the Eurostat's ***European Health Interview Survey*** (EHIS) - first tried on a pilot basis in 2008 and then launched on a full-fledged basis in 2014-15. This source combines the advantages of a methodology common to all MS with larger samples and, therefore smaller margins of error. But since only one measurement has been carried out so far (2014) it is of no use for assessing historical trends. The smoking prevalence data reported by Eurobarometer and EHIS differ sometimes significantly, as in the case of LT, NL, SE and PT.

This heterogeneity in prevalence figures constitutes an obstacle for making sound cross-country comparison and, more importantly, to assess the effectiveness of tobacco control measures, including taxation, and enabling policy dialogue on best practices and future targets. The consultation of public health authorities revealed that the majority of MS rely on domestically-collected figures, while international data seldom enters national monitoring system: only a couple of MS have declared using the harmonized WHO data, two of them reported using EHIS in addition to own data, and just one Member State relies mainly on Eurobarometer, as the main source of baseline data for policy-making. While most national authorities monitor smoking prevalence trends based on domestic sources, the public health expert community base most of their EU-focused literature on the Eurobarometer, which is considered as a sort of second-best choice in the absence of robust time series. This can give rise to discrepancies in the analysis of trends and in the conclusions on the impact of policies.

[115] One of the most recent such studies, carried out within the framework of the Global Burden of Disease (GBD) initiative, is: GBD 2015, *Smoking Prevalence and attributable disease burden in 195 countries and territories, 1990-2015: a systematic analysis from the Global Burden of Disease Study*, The Lancet, May 2017.
[116] In the period under consideration four Eurobarometer surveys devoted to tobacco control have been carried out. These include survey 72.3 in October 2009, survey 77.1 in 2012, survey 82.4 in 2015 and survey 88.1 as late as. All these surveys but one has covered all the EU MS with a sample of some total 30,000 individuals.
[117] For instance, the Eurobarometer results in 2006 were on average 0.36% higher than those reported by the national surveys, which can be largely attributed to the margin of error entailed by the relatively small size of the samples (1000 individuals in most EU countries, 1500 in Germany and 500 in small countries). However, at the individual country level, the differences can be notable, in certain cases diverging by some +/- 10% points from the results of the national surveys (e.g. Slovakia and the UK). Overtime incoherent fluctuations in the Eurobarometer data also confirms the methodological limitations of this tool. For instance, the figures for the UK varied between 28% and 45% between 2006 and 2008, whereas national figures for the same period indicated a more plausible decline from 26% to 21%. See: I. Bogdanovica, F. Godfrey, A McNeill, J Britton, 'Smoking prevalence in the European Union: a comparison of national and transnational prevalence survey methods and results', Tobacco Control October 2010.

A selection of data points reported by the above sources are provided in Table 3.11 below. The purpose of the Table is to illustrate how the different approaches and methodologies may lead to sometimes substantial discrepancies, returning a quite different picture on smoking prevalence trends. In agreement with the Commission, in this Study we have primarily made reference to the Eurobarometer data. On this basis, the ***overall EU smoking prevalence*** has apparently decreased from 29% to 26% in the 2009-2014 period, then substantially stalled since 2014. EHIS-based data for 2014 indicate a prevalence of 2% points smaller than the Eurobarometer. The gap is much larger for certain MS, like DE, EL, ES and PT. According to Eurobarometer figures[118] the Member States can be divided into five groups, and namely:

- those on a steadily declining trend and for which there is little doubt that they have managed to achieve a sizeable reduction in smoking prevalence: notably the UK, SE, NL, DK, EL and to a lower extent CY;
- those that have also been on a sizeable decreasing trend since 2009 thereby reversing an apparent previous slight tendency to increase registered from 2006 till 2009 which include BE, ES, IE and HU;
- a large group of countries that have constantly remained on a less sizeable declining trend from 2009 till 2014 but then experiencing a sudden and often slight reversal in 2017 figures, and namely AT, BG, EE, FR, IT, LV, LT, PL, RO and SK. The statistical significance of these reversals is often unclear, but it can be roughly concluded that there the decreasing trend seems to have somehow levelled off, which is also generally in line with release for consumption figures.
- countries where the smoking prevalence has remained stable over the whole period with or without significant fluctuations including DE, FI, CZ and possibly MT and LU (although in these cases the small size of samples could have affected the results);
- finally, Member States where smoking prevalence have conversely been increasing over the period, and namely SI, PT and HR, although there is conflicting evidence on whether this is a real trend or rather depends on statistical error.

[118] It is worth noting that this classification would no longer apply if EHIS 2014 figures are used. For instance, Sweden would appear as a stable rather than a steadily decreasing country, Portugal, Croatia and Germany on a decreasing rather than a growing or stable trend, and Austria and Slovenia as stable overall. In any case, the number of MS where the historical decrease in smoking prevalence appears to have levelled off or lost steam over the last few years is higher than those that have consistently remained on a declining trend.

Table 3.11 - Current and daily smoking prevalence (in % of population) in the EU MS, according to different sources (2000-2016)

MS	Current smoking prevalence											Daily cigarettes smoking prevalence	
	2005 WHO (M-F)	2006 EB	2009 EB	2010 WHO (M-F)	2012 WHO (M-F)	2012 EB	2013 WHO	2014 EB	2014 EHIS	2015 WHO (M-F)	2017 EB	2014 EHIS	2015 GBD
AT	42.3 - 38.4	31	34	38.8 - 38.8	37.4 - 24.3	32.8	..	25.6	30.0	35.5 - 34.8	28.3	23.9	26.3
BE	32.1 - 22.7	26	30	29.1 - 29.1	28 - 13.3	26.9	23.9	25.4	23.0	26.5 - 20.0	19.2	16.8	18.9
BG	52.7 - 36.4	36	39	47.1 - 47.1	45.2 - 23.4	36.2	36.8	34.8	34.8	42.4 - 28.2	36.0	27.3	31.7
CY	..	31	32	..	..	30.0	..	30.8	29.1	..	27.5	25.2	25.7
CZ	39.8 - 29.6	29	26	39.4 - 39.4	39.4 - 24.8	29.2	33.4	24.4	28.7	39.4 - 33.5	28.9	21.2	23.9
DE	39.5 - 29.4	30	25	38.5 - 38.5	38 – 23	26.4	30.7	27.0	21.7	37.4 - 29.0	25.4	15.0	22.2
DK	31.1 - 27.0	32	29	23.4 - 23.4	21 - 15.1	25.6	18.9	23.0	20.9	17.6 - 16.4	18.6	12.3	16.8
EE	49.9 - 26.5	33	32	45.2 - 45.2	43.6 - 20.3	26.4	33.2	22.1	27.6	41.2 - 24.9	23.3	22.7	22.3
EL	29.9 - 22.8	42	42	26.3 - 26.3	25 - 16.1	39.8	43.4	38.0	32.6	23.2 - 18.5	36.5	27.0	31.8
ES	34.8 - 26.8	34	35	32.1 - 32.1	31.1 - 19.4	32.7	30.3	29.5	25.3	29.8 - 25.6	27.4	22.2	22.0
FI	36.1 - 29.6	26	21	34.3 - 34.3	33.6 – 24	24.9	21.8	18.7	19.2	32.4 - 28.3	20.6	11.6	17.4
FR	59.3 - 38.6	33	33	55.6 - 55.6	54.3 - 21.8	28.1	28.1	31.8	28.3	52.6 - 32.7	26.0	20.5	23.4
HR	40.6 - 30.8	33	33	35.9 - 35.9	34.5 - 19.4	..	36	33.2	28.7	32.0 - 24.8	25.1	24.5	28.1
HU	28.9 - 27.3	36	38	25.5 - 25.5	24.2 - 17.7	32.2	29.6	30.2	27.5	22.4 - 21.9	26.6	25.8	25.1
IE	31.2 - 20.1	29	31	29.7 - 29.7	29.1 - 16.7	28.9	23.2	21.5	22.0	28.3 - 19.7	19.4	12.7	21.3
IT	53.9 - 24.6	31	26	51.6 - 51.6	50.5 - 19.2	24.1	24.2	20.9	22.7	48.9 - 24.3	24.7	17.4	20.1
LT	47.3 - 21.3	34	30	42.3 - 42.3	40.5 - 16.7	30.4	30.1	25.9	25.0	38.1 - 22.2	29.1	20.2	23.2
LU	31.1 - 24.1	26	25	28.4 - 28.4	27.4 - 15.9	26.7	24.4	21.2	20.5	25.8 - 21.4	21.0	13.8	21.1
LV	35.4 - 24.3	36	36	32.5 - 32.5	31.5 - 16.1	36.3	35.9	29.9	29.5	29.7 - 20.2	32.2	24.1	26.9
MT	32.7 - 28.1	25	26	29.4 - 29.4	27.5 - 20	27.4	25.9	20.1	24.1	26.2 - 23.9	24.0	18.9	19.1
NL	41.1 - 32.2	29	24	36.5 - 36.5	34.9 - 20.8	23.5	25.7	22.6	25.2	32.4 - 23.7	19.4	17.2	17.8
PL	34.5 - 14.9	35	33	32.9 - 32.9	32.4 - 9.3	31.7	29.4	28.5	26.1	31.5 - 13.7	29.7	21.9	22.9
PT	46.6 - 25.6	24	23	41.4 - 41.4	39.5 - 18.5	22.6	22.6	25.5	20.0	36.9 - 22.7	25.6	16.3	18.7
RO	43.7 - 19.9	31	30	41.4 - 41.4	40.7 - 10.2	30.2	30.5	27.5	25.7	39.7 - 17.6	28.0	19.8	22.3
SE	27.0 - 21.0	18	16	24.6 - 24.6	23.6 - 14.4	12.6	21.9	11.5	16.7	22.3 - 18.1	7.1	8.7	10.9
SI	39.8 - 30.4	23	26	35.3 - 35.3	33.7 - 22.4	27.4	20.9	30.5	24.2	31.3 - 27.1	27.9	18.0	20.7
SK	27.7 - 29.1	25	26	23.8 - 23.8	22.3 - 19.4	22.9	28.8	20.8	29.5	20.4 - 20.8	26.3	22.6	20.2
UK	26.8 - 24.7	33	28	23.0 - 23.0	21.8 - 15.5	26.7	20.3	21.6	17.3	19.9 - 18.4	17.4	13.7	19.0
EU		**32**	**29**			**28**		**26**	**23.9**		**26**	**18.4**	**22.0**

Sources: *The World Health Organization (WHO) database, Eurobarometer (EB) 272 (2007), 332 (2010), 385 (2013), 429 (2015) and 485 (2017), Eurostat EHIS data, Global burden of disease, Smoking Prevalence and attributable disease burden in 195 countries and territories, 1990-2015: a systematic analysis from the Global Burden of Disease Study, The Lancet, May 2017.*

Legend: *EB=Eurobarometer; EHIS=European Health Interview Survey; GBD= Global Burden of Disease.*

Notes: *WHO data refer to: Prevalence of current smoking of any tobacco product by persons aged 15 years and above - all WHO data refer to the percentage of male (left) and female (right), except for the year 2013; EB data refer to: Prevalence of smokers by persons aged 15 years and over; and ECHI data refer to: Proportion of people aged 15+ reporting to smoke cigarettes daily.*

➢ GENDER BREAKDOWN

While smoking prevalence rates remain generally higher among men, the 'gender gap' is uneven in the EU, with relatively small differences in Western countries (with some exceptions) and a more marked divide in Eastern ones (especially Baltic countries, RO, CZ and SK) broadly in line with their different stages in the tobacco epidemics curve (see Table 3.12). In only a couple of countries, according to Eurobarometer data, the prevalence is higher among women, namely in IE and SE. Nonetheless, a progressive reduction of the gender gap has been registered in most MS during the last decade, particularly in DE, ES, UK, MT and EE. Such convergence was generally caused by slower declining trends among women than men, but in a few cases (DE, FR, HR, SK, and SI) the smoking prevalence among women have seemingly increased, as if they were still in the growing phase of the tobacco epidemics. In countertendency with the general evolution, some MS registered a deepening of the gender gap, namely BG, CZ, IT, PT and SE.

Table 3.12 - Smoking prevalence among men and women in EU countries (2009 – 2017)

MS	2009		2017		Gender gap (in % points)		Gap size	Trend
	M	F	M	F	2009	2017	2017	2009-17
AT	41%	27%	34%	23%	14%	11%	H	C
BE	34%	26%	21%	17%	8%	4%	M	C
BG	43%	30%	45%	28%	13%	17%	H	D
CZ	34%	19%	38%	21%	15%	17%	H	D
DE	32%	19%	28%	23%	13%	5%	M	C
DK	33%	26%	19%	18%	7%	1%	L	CC
EE	47%	20%	33%	15%	27%	18%	H	CC
EL	47%	38%	41%	32%	9%	9%	M	S
ES	42%	28%	31%	27%	14%	4%	M	CC
FI	26%	17%	24%	16%	9%	8%	M	S
FR	37%	28%	40%	32%	9%	8%	M	S
HR	39%	26%	40%	31%	13%	9%	M	C
HU	42%	32%	31%	23%	10%	8%	M	C
IE	30%	32%	18%	20%	-2%	-2%	L*	S
IT	27%	25%	34%	17%	2%	17%	H	DD
LT	43%	19%	42%	19%	24%	23%	H	S
LU	32%	18%	25%	17%	14%	8%	M	CC
LV	50%	23%	47%	21%	27%	26%	H	S
MT	36%	17%	30%	18%	19%	12%	H	CC
NL	26%	22%	22%	17%	4%	5%	M	S
PL	38%	28%	34%	26%	10%	8%	M	C
PT	30%	17%	36%	19%	13%	17%	H	D
RO	40%	20%	38%	19%	20%	19%	H	S
SE	12%	20%	5%	9%	-8%	-4%	M*	D
SI	32%	21%	32%	24%	11%	8%	M	C
SK	35%	18%	34%	19%	17%	15%	H	C
UK	32%	25%	17%	17%	7%	0%	L	CC

***Source**: Author's elaborations on Eurobarometer data.*
***Legend**: Gap size: H=high (greater than 10% points); M=medium (b/w 2% and 10% points); L=Low (2% points or less); (*) countries where the gap is 'reversed' (i.e. prevalence is higher among women). Trend: CC= fast convergence (gap reduction greater than -5% points); C=convergence (gap reduction b/w -1% and -5% points); S=stability (gap reduction b/w -1% and 1% points); D= divergence (gap increase b/w 1% and 5% points); DD=fast divergence gap increase greater than 5% points).*

➢ YOUTH AND ADOLESCENT SMOKING PREVALENCE

The Eurobarometer surveys provide also disaggregated figures on smoking prevalence among young people (aged 15-24) but the size of the samples, which seldom exceeds 150 individuals per country, is definitely too small to draw any firm conclusions on the magnitude and trend of the issue. Furthermore, the age group considered includes also young adults so the indicator is only a proxy of the true prevalence among

adolescents.[119] For this reason, in Table 3.13 overleaf we have included also the youth smoking prevalence data communicated by the Member States to the FCTC Secretariat, which focus more specifically on adolescent smoking. As discussed at the beginning of this Section, these data are not homogeneous and hardly allow for cross-country comparison. That said, the emerging evidence can be summarised as follows:

- In most countries (16 MS) youth prevalence has decreased in the 2009-17 period, while it has seemingly increased in 8 MS and remained substantially stable in 4 MS. The decline has been more marked in BE, UK, IE, SE and ES.
- On average, the decline was steeper than among the overall population, falling by 6% points between 2009 and 2017 against only 3% points for the total population. Public health stakeholders attribute this to both the higher price sensitivity of young people to the price increases registered in the period and to the general denormalisation process that makes conventional tobacco less interesting to this population group.
- At any rate, smoking prevalence in the 15-24 years group remains higher than in the total population by some 3% points, on average. In the few countries where this is not the case (i.e. EL, DK, MT, EE, BE, and SE), a decline of prevalence among the total population can be evidently expected in the near future.
- Conversely, there are countries where trends have proceeded in reversal and smoking prevalence among the youth have increased and become higher than among the total population. This seems to be the case, in particular, of HR, PT, SK, IT and to a lesser degree of BG and LU. In FR and IE youth smoking has declined but is still above the overall population rate.
- Adolescent smoking, as emerged from FCTC data, does not show any relevant 'gender gap', except in a few MS where it is significantly more widespread among boys (CY and LT) or *vice versa* (BE and to a lesser degree IT and SE). Overall, female adolescent smoking appears more prominent than among female adults.

[119] In fact, smoking is rarely reported to start beyond 20 and conversely can already be found at 12.

Table 3.13 - Smoking prevalence among 15-24 compared with the general population

MS	Eurobarometer (15-24 years)					FCTC (based on MS reporting)			
	2009	2014	2017	Variation* (2009-2017)	Difference with total population* (2017)	Male	Female	TOTAL	Age group (year of reference)
AT	37%	29%	29%	-8%	1%	5.1%	5.9%	5.5%	15 (2014)
BE	44%	26%	15%	-29%	-4%	13.2%	23.4%	18.0%	15-19 (2013)
BG	42%	42%	44%	2%	8%	25.7%	29.0%	27.4%	13-15 (2015)
CY	39%	16%	26%	-13%	-2%	22.0%	13.0%	18.0%	15-16 (2015)
CZ	35%	32%	36%	1%	7%	18.4%	20.0%	19.2%	13-15 (2016)
DE	27%	25%	31%	4%	6%	7.7%	7.8%	7.8%	12-17 (2015)
DK	24%	18%	13%	-11%	-6%	26.7%	23.4%	25.0%	16-24 (2013)
EE	38%	14%	19%	-19%	-4%	17.1%	14.4%	7.9%	13-15 (2014)
EL	39%	27%	29%	-10%	-8%	16.9%	12.9%	15.0%	13-15 (2014)
ES	48%	21%	31%	-17%	4%	32.6%	36.9%	34.7%	14-18 (2016)
FI	25%	19%	20%	-5%	-1%	1.0%	2.0%	1.6%	14 (2017)
FR	48%	28%	39%	-9%	13%	13.1%	16.1%	14.6%	15 (2017)
HR	26%	36%	38%	12%	13%	18.8%	17.2%	18.0%	15 (2014)
HU	39%	25%	39%	0%	12%	16.0%	20.0%	18.0%	7-8-9 grade (2016)
IE	39%	22%	25%	-14%	6%	4.9%	3.9%	4.3%	12-14 (2014)
IT	25%	20%	34%	9%	9%	20.6%	26.3%	23.4%	13-15 (2014)
LT	29%	30%	34%	5%	5%	20.9%	9.2%	19.0%	13-15 (2010)
LU	24%	24%	30%	6%	9%	3.0%	2.1%	2.3%	18-24 (2016)
LV	36%	30%	35%	-1%	3%	25.3%	23.9%	24.7%	13-15 (2014)
MT	24%	21%	19%	-5%	-5%	..	..	..	..
NL	28%	20%	24%	-4%	5%	11.0%	10.2%	10.6%	12-16 (2015)
PL	38%	27%	29%	-9%	-1%	15.5%	14.7%	15.1%	15 (2014)
PT	22%	22%	37%	15%	11%	14.5%	14.7%	14.6%	15 (2015)
RO	37%	33%	33%	-4%	5%	12.2%	10.1%	11.2%	13-15 (2013)
SE	19%	23%	3%	-16%	-4%	8.0%	13.0%	10.0%	15-16 (2017)
SI	33%	34%	33%	0%	5%	14.7%	11.8%	13.1%	15 (2014)
SK	24%	14%	35%	11%	9%	25.0%	29.0%	26.0%	15 (2014)
UK	40%	25%	18%	-22%	1%	6.0%	7.0%	7.0%	15 (2016)
EU	**35%**	**25%**	**29%**	**-6%**					-

Source: *Author's elaborations based on Eurobarometer data (2009, 2014 and 2017) and the FCTC data communicated by the EU MS (latest available information - COP 8).*
Notes: *(*) figures expressed in percentage points.*

3.3 Tax and price trends

3.3.1 Cigarettes

➢ **EU MINIMA AND OVERALL EXCISE DUTY TRENDS**

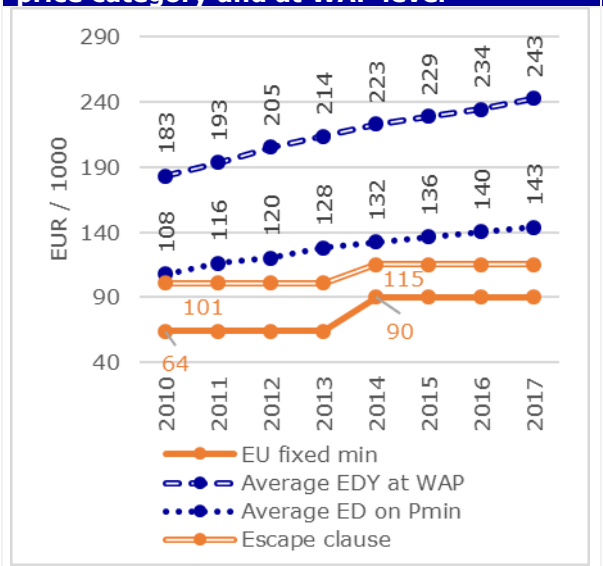
In the 2010-2017 period there have been two increases of the EU minimum rates for cigarettes. The first was in 2010, under Directive 2010/12, and established a minimum fixed amount for all cigarettes equal to EUR 64 per 1000 units and a relative minimum rate of 57% of the retail selling price at WAP level (except for countries levying an excise duty of at least EUR 101 per 1000 units – the so-called 'escape clause'). The second step was in 2014, when levels went up respectively to EUR 90 and 60% of the retail selling price (with an 'escape clause' at EUR 115). Nine countries were granted a transitional period until the end of 2017 to reach these minima (BG, EE, EL, LT, LV, HR, HU, PL and RO).

The two graphs in Figure 3.9 below show how the average excise duty levels in MS have evolved in relation to these EU minima parameters. The results indicate that:

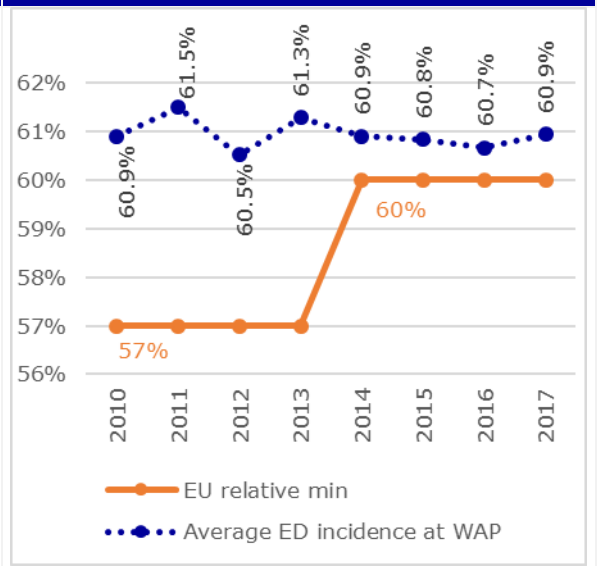
- There has been a clear upward trend in the excise duty levied on the lowest price category of cigarettes, that largely corresponded to the trend in the EU fixed minimum amount.
- Instead, limited correlation emerges between the EU relative minimum rate trend and the excise duty incidence at WAP registered in EU countries. Despite the 2014 increase, the average incidence has remained largely stable in the period examined. This seems primarily the effect of the 'escape clause', which allowed the majority of MS to derogate from this obligation (as shown in Figure 3.9.A the escape clause level has been always much below the average excise duty at WAP level).

Figure 3.9 – EU minimum rates for cigarettes and overall excise duty trends (2010-17)

A) EU minimum fixed amount, escape clause and the excise levied on the lowest price category and at WAP level



B) EU relative minimum rate and excise incidence at WAP (in %)



Source: *Author's elaboration based on EDT and Euromonitor International price data (for Figure A).*
Legend: *WAP=weighted average price; ED on P_{min}=excise duty levied on the lowest price category of cigarettes; EDY at WAP=excise duty yield at the level of the weighted average price; ED incidence at WAP=incidence (in %) of the excise duty levied at the WAP level.*

➢ **MEASURING THE LEVEL OF TAXATION IN MEMBER STATES**

The most straightforward indicator to assess and compare excise levels in MS is the '***excise duty yield at WAP level***' (hereinafter 'EDY'), that is the monetary sum levied on 1000 cigarettes at the WAP level. The EDY is a synthetic proxy of the overall excise duty levied, as it contains both the specific and the ad valorem components applicable at WAP level. The direct correlation to WAP makes that it evolves automatically with the market price levels and their distribution.[120] It should be noted that the incidence of excise duty at WAP level does not always corresponds to the 'real' average incidence of excise duty in the whole market, since in most MS part of the market is subject to an 'extra' duty because of the MED mechanism. Theoretically, the 'real' incidence is represented by the total excise revenues divided by the total market value. However, as discussed in the Methodology, there is a comparability issue with the excise revenues reported by MS that relates to the different accounting practices, while market value is affected by forestalling practices, so this ratio cannot be calculated in an accurate manner.[121] All in all, the effects of the MED can be assumed as marginal, because – as discussed later on in the Report – the extra revenues generated by the MED account on average for less than 1% of the MS excise duty receipts. So, the EDY remains a valid indicator of the overall level and trends of the excise duty rates applied in MS.

While the EDY is certainly the indicator of reference to ascertain compliance with the EU relative minimum rate and the 'escape clause', a different indicator is needed for the EU fixed minimum amount, which apply to 'all' products without any reference to the WAP level. To this end, we have developed another helpful indicator that is the excise duty applicable at the level of the 'lowest viable price' which is the price level below which the total tax burden (including VAT) exceeds the sale price. As described in previous Box 1.1, we indicate the 'lowest viable price' as P_0, so the indicator defined here is the ***excise yield at P_0 level***. This indicator takes into account any optional 'minimum excise duty' (MED) applied at the country level, as this may significantly affect price levels in the low-price segment of the market. Moreover, it is useful to define also the '***total tax burden***' (TTB) indicator, which is the tax applicable at the WAP level, inclusive of VAT. Since VAT levels change across countries, this indicator may provide a more realistic picture of the tax incidence on price in a comparative perspective.

Table 3.14 below provides a summary of the salient 'baseline' data on taxation. In particular:

- In the 2010-17 period, the average excise duty yield at WAP (EDY) in the EU moved from EUR 113.1 per 1000 units to some EUR 148.4. The average increase of EDY in MS has amounted to 34%, but ranging from a minimum of 10% in CY to a maximum of 71% in FI. The differences between MS remain large and geographically skewed, with high rates (in nominal terms) in north-western MS (especially IE, UK, FR, but also BE, NL), in the Nordic countries (especially FI, but also SE, DK), and MT; while below-average rates can be found in the Baltics (especially LV and LT) and in centre/south-eastern MS (CZ, SK, BG, PL, HU, RO and HR). The disparity between high-taxing and low-taxing countries has increased in nominal term. This is confirmed both considering the difference between the single highest and lowest countries (whose EDY 'gap' increased from EUR 196 to EUR 254) and dropping the possible outliers and measuring the difference between the 10% and the 90%

[120] In this Study, the EDY has been recalculated and does not correspond to the value published in the Commission EDT for two reasons: (1) the WAP reported in the EDT in a given year actually refer to products released for consumption in the previous year. So, the 'true' EDY of year Y should be calculated based on the WAP reported in year Y+1; (2) secondly, EDT data had often to be often adjusted due to reporting gaps or delays from MS, or tax changes in the course of a given calendar year, which required calculating an 'average' or 'prevailing' EDY.

[121] In fact, if a surplus of cigarettes is released for consumption in year Y but the corresponding duty is registered by tax authorities in year Y+1, the resulting ratio may fluctuate significantly and becomes unreliable for analytical purposes.

percentile of the MS distribution (in this case the EDY gap increased from EUR 85 to EUR 121). In relative terms, the ratio between the highest and the lowest values of the EDY distribution has remained almost stable, both including and excluding the extremes: the EDY in the highest-taxing MS has remained four times bigger than in the lowest-taxing country – 2.2 times bigger if extremes are not considered.

- The excise duty applicable at the 'lowest viable price' (P_0) level has increased at a faster pace, suggesting a more marked focus of fiscal policies on the low-segment of the market. On average, it increased by some 46% in the 2010-17 period, ranging from EUR 76.9 in HR to EUR 324.2 in IE. The geographical distribution is not dissimilar to the EDY, but since this indicator depends also on the excise structures chosen by MS (including the extent of the MED) some differences can be observed: for instance, countries like BE, LU and HR rank much lower than in the EDY distribution, while EL, PT and LV rank higher.
- The total tax burden has grown in parallel with EDY and in 2017 has reached EUR 191.5 per 1000 cigarettes. When related to WAP, it results in an average incidence of 78%. Actually, the total tax incidence ranges from as low as 69% in LU up to 87% in EL. If only excise duty is considered, the average incidence at WAP level is of 61% of retail selling price. The highest incidence is found in UK (69%), EL (68%) and BG (67%), while the lowest is in SE (54%), HU (54%) and LU (55%). On average, the total tax burden incidence increased by 0.6 percentage points between 2010 and 2017, while no increase is registered in the incidence of EDY. In UK, FI, SI and AT, a significant increase of more than 3.0% in the incidence of EDY was registered. Conversely, the incidence decreased by -3.0% or more in PT, HU, DE, and RO.

Table 3.14 – Key tax level indicators in Member States

MS	EDY 2017	*var. 2010-17*	ED P_0 2017	*var. 2010-17*	TTB 2017	var. *2010-17*	MS	TTB / WAP	*var.* 2010/17*	EDY / WAP	*var.* 2010-17*
IE	340.4	*31%*	324.2	*38%*	443.1	*33%*	**EL**	87%	*1.4%*	68%	*0.8%*
UK	313.5	*52%*	299.1	*65%*	389.5	*55%*	**FI**	86%	*6.7%*	66%	*6.1%*
FI	221.6	*71%*	183.9	*84%*	286.5	*68%*	**UK**	85%	*5.2%*	69%	*3.0%*
FR	216.8	*25%*	175.8	*35%*	273.2	*26%*	**BG**	84%	*-1.4%*	67%	*-1.4%*
NL	182.1	*29%*	177.4	*41%*	236.5	*32%*	**EE**	82%	*2.3%*	66%	*2.3%*
BE	177.4	*32%*	136.1	*43%*	228.5	*31%*	**FR**	81%	*0.2%*	64%	*-0.1%*
MT	174.1	*50%*	152.6	*68%*	217.8	*51%*	**IE**	81%	*1.8%*	62%	*0.4%*
DK	161.5	*22%*	160.8	*38%*	215.1	*20%*	**SI**	81%	*5.5%*	63%	*4.2%*
SE	161.4	*26%*	160.5	*71%*	221.4	*25%*	**LV**	81%	*0.0%*	63%	*0.0%*
DE	157.9	*13%*	138.8	*9%*	201.8	*15%*	**PL**	80%	*1.1%*	62%	*0.4%*
AT	145.1	*34%*	117.6	*49%*	184.8	*32%*	**DK**	80%	*2.7%*	60%	*2.7%*
IT	143.2	*20%*	108.3	*19%*	187.2	*22%*	**ES**	79%	*0.9%*	62%	*-1.2%*
ES	140.0	*33%*	105.9	*48%*	179.2	*37%*	**SK**	79%	*-0.8%*	62%	*-1.5%*
EL	133.6	*27%*	120.4	*68%*	171.7	*28%*	**BE**	78%	*0.9%*	60%	*0.9%*
PT	129.5	*21%*	118.8	*22%*	171.6	*26%*	**AT**	78%	*3.9%*	61%	*3.9%*
CY	127.8	*10%*	104.2	*65%*	161.9	*15%*	**LT**	78%	*-0.2%*	60%	*-0.2%*
LU	126.2	*22%*	82.2	*17%*	159.6	*26%*	**IT**	77%	*1.8%*	59%	*0.5%*
EE	116.8	*67%*	101.3	*72%*	146.3	*66%*	**PT**	76%	*-2.5%*	58%	*-4.5%*
SI	111.7	*45%*	101.9	*76%*	143.8	*45%*	**CZ**	76%	*0.7%*	59%	*0.0%*
HR**	107.3	*63%*	76.9	*86%*	146.5	*60%*	**MT**	76%	*-1.0%*	61%	*-1.0%*
RO	98.6	*32%*	90.1	*33%*	126.3	*29%*	**CY**	76%	*1.7%*	60%	*-1.2%*
HU	98.5	*49%*	82.6	*44%*	137.5	*56%*	**NL**	76%	*0.1%*	58%	*-1.3%*
PL	98.3	*38%*	86.0	*46%*	128.1	*39%*	**HU**	75%	*-4.7%*	54%	*-6.0%*
SK	98.2	*17%*	88.4	*17%*	124.6	*18%*	**HR****	75%	*2.5%*	55%	*2.5%*
CZ	97.2	*21%*	83.6	*22%*	125.9	*22%*	**SE**	74%	*2.4%*	54%	*2.4%*
LT	95.8	*47%*	83.2	*52%*	123.5	*47%*	**DE**	73%	*-3.3%*	57%	*-3.3%*
LV	95.7	*37%*	87.8	*46%*	121.9	*37%*	**RO**	73%	*-9.2%*	57%	*-5.8%*
BG	86.1	*11%*	79.5	*10%*	107.4	*12%*	**LU**	69%	*-0.9%*	55%	*-2.4%*
EU	148.4	*34%*	129.6	*46%*	191.5	*35%*	**EU**	78%	*0.6%*	61%	*0.0%*

Source: *Author's elaboration based on EDT.*
Legend*: EDY=excise duty yield at WAP level, ED P_0=excise duty level at the 'lowest viable price' level, TTB=total tax burden (including VAT); WAP=weighted average price, var.=variation.*
Notes: *(*) variations are expressed in percentage points. (**) For HR, variations refer to the 2012-17 period.*

➢ THE 'MINIMUM EXCISE DUTY' (MED)

The option to levy a minimum excise duty (MED) - i.e. a fixed monetary amount per quantity applicable if the excise duty falls below a certain level – was introduced with Directive 95/59, with the aim of helping MS – especially those with a high ad valorem component – to prevent and address the risk of downward price trends. The early versions of the legislation established a fixed 'cap' to the MED to underline the fact that it constituted a corrective measure, whereas the mandated regime for cigarettes remained the 'mixed structure'. Initially, the MED could not exceed 90% of the total tax on most popular price category (MPPC), then, with Directive 2002/10, the MED the cap was modified in '100% of the excise yield on the Most Popular Price Category'. Finally, with Directive 2010/12 and the subsequent Directive 2011/64 the cap was removed, but an explicit reference to the need to respect the 'mixed structure' was added.

Table 3.15 – Minimum Excise Duty (MED) trends in Member States

MS	MED 2017	*Variation 2010-17*	Ratio MED/EDY (2017)	Ratio MED /ED P_0 (2017)
AT	139.7	*38%*	96%	119%
BE	168.5	*35%*	95%	124%
BG	85.9	*14%*	100%	108%
CY	121.5	*46%*	95%	117%
CZ	95.1	*20%*	98%	114%
DE	196.6*	*10%*	..	..
DK	-	-	-	-
EE	105.0	*64%*	90%	104%
EL	117.5	*46%*	88%	98%
ES	131.5	*44%*	94%	124%
FI	211.5	*64%*	95%	115%
FR	213.0	*30%*	98%	121%
HR	89.4	-	83%	116%
HU	94.7	*48%*	96%	115%
IE	307.6	-	90%	95%
IT	175.5*	*37%*	..	..
LT	90.0	-	94%	108%
LU	116.0	*20%*	92%	141%
LV	96.4	*42%*	101%	110%
MT	165.0	*41%*	95%	108%
NL	181.6	*32%*	100%	102%
PL	98.0	*53%*	100%	114%
PT	128.0	*19%*	99%	108%
RO	94.9	*34%*	96%	105%
SE	-	-	-	-
SI	111.0	*50%*	99%	109%
SK	96.5	*19%*	98%	109%
UK	307.6	-	98%	103%
EU	**135.6**	***37%***	**95%**	**112%**

Source: *Author's elaboration based on EDT.*
Legend*: MED=minimum excise duty, EDY=excise duty yield at WAP level, ED P_0=excise duty level at the 'lowest viable price' level, (..) not calculated for non-comparability, (-) not calculated for non-application of MED.*
Notes: *(*) Germany and Italy apply a minimum total tax (MTT) inclusive of VAT, so their figures are not comparable with the figures of the other MS.*

Table 3.15 above summarises the use of MED by MS in the period considered. In the first place, it can be noted that nearly all MS have introduced a MED, with the exception of those where the specific component is so predominant that the MED would in practice be redundant (DK, SE). Overtime, the MED levels have increased only slightly faster than the above EDY trends (37% in the period). MED levels are generally set in the range of 90-100% of the EDY, but since the removal of the cap at 100% some MS have occasionally exceeded it. Given the competitive pressure in the low segments of the market, a small difference of level may have important consequences on the share of the market covered, which can go from 0% (e.g. IE), to virtually 50% (where MED is 100% of EDY, such as BG, NL and PL), or the majority of the market (e.g. in LV). On average, the incidence of MED has remained stable at ca. 95% of EDY since 2010.

Another useful indicator is the ratio between the MED level and the abovementioned excise duty levied at the 'lowest viable price' (P_0) level. The higher the ratio the more pervasive is the incidence of MED on the lower segment of the market, which is the case of certain countries with a structure relatively skewed towards the ad valorem component, such as LU, ES, FR and BE. Conversely, when this ratio is close to 100% (or even below), the MED acts as a sort of 'floor' but no portions of the market (or only a tiny one) actually falls under it (IE, possibly EL and the NL). In the 2010-17 period the average ratio dropped from 119% to 112%, indicating that the latter use of MED has become more widespread.

- **TRENDS IN THE EXCISE DUTY STRUCTURE**

The Directive 2011/64 (and all its previous versions) envisaged a progressive approximation of the excise duty structures applied to cigarettes in the MS. In this respect, not only does it impose an obligation of mixed structure but also minimum and maximum thresholds for the specific components and thus, implicitly, also for the *ad valorem*. However, since thresholds are calculated on the 'total tax' inclusive of VAT, the *ad valorem* component de facto depends also on VAT (to which it is analogous). The upper threshold of specific component has remained stable at 76.5% of the total tax at WAP level, while the lower threshold has increased from 5% to 7.5% in 2014.

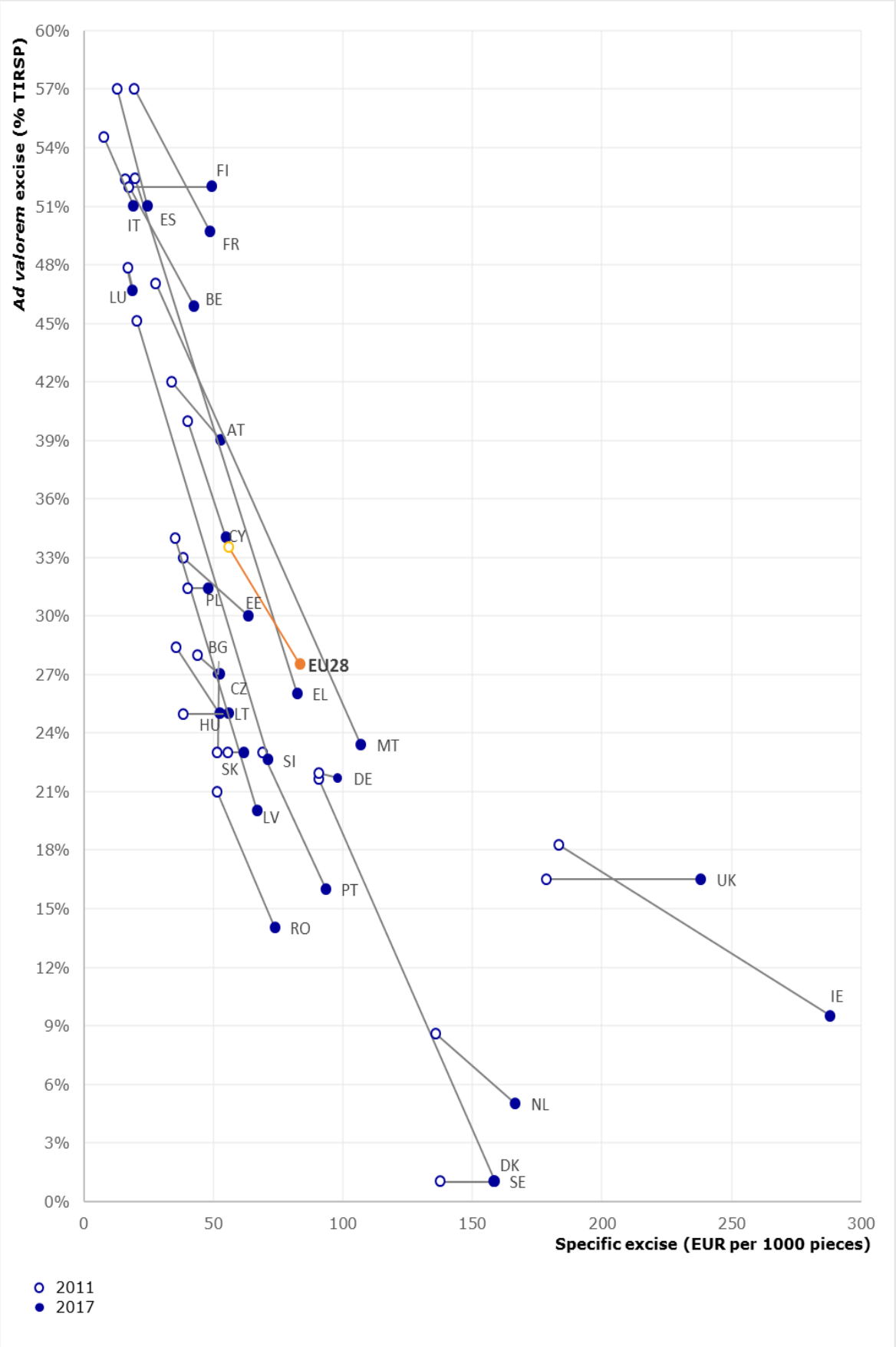
Figure 3.10 below shows how the two components of excise duty on cigarettes have actually evolved in MS between 2011 and 2017. Overall, there have been a progressive switch from *ad valorem* to specific in nearly all MS: on average, the *ad valorem* component declined by more than 6 percentage points (from 33.8% to 27.1% of the WAP), while the specific component went up from some EUR 55.3 to EUR 86.7 per 1000 sticks. So, on average, the specific component represents now ca. 55% of the excise duty yield in MS against some 45% in 2011. The increase of the specific component had characterised also the preceding period and had been explained as a direct consequence of the soaring market shares of low-price cigarettes, which affected tax revenues and mitigated the expected impact of tax hikes on demand and consumption.[122]

The trend was different across MS and the current picture remains highly diversified. The 'switching' from ad valorem to specific component was remarkable in EL, MT, SI and to a lesser extent DK and IE. Countries like UK, FI, and SE increased the specific component but did not modify the *ad valorem* component. In a few countries – namely PL, SK, DE, LU, and BG – no substantial change of structures was registered. Despite some changes, MS remain distributed in three main clusters: (i) MS with a high *ad valorem* component, like IT, FR, ES, BE, LU, and FI (formerly also CY, EL, MT, SI and AT); (ii) MS with a high specific component (UK, IE, NL, DK and SE); and (iii) the remainders with more balance between the two components.

With respect to mandatory thresholds, the two extreme points of the distribution are currently represented by IT – where the specific component accounts for 10.0% of the total tax burden – and DK - where it accounts for 73.8%.

[122] For a review of the early trends in this respect see: KPMG, Study on the collection and interpretation of data concerning the release for consumption of cigarettes and fine-cut tobacco for the rolling of cigarettes, for DG TAXUD, 2005.

Figure 3.10 – Ad valorem and specific components trends between 2011 and 2017



***Source**: Author's elaboration based on EDT.*

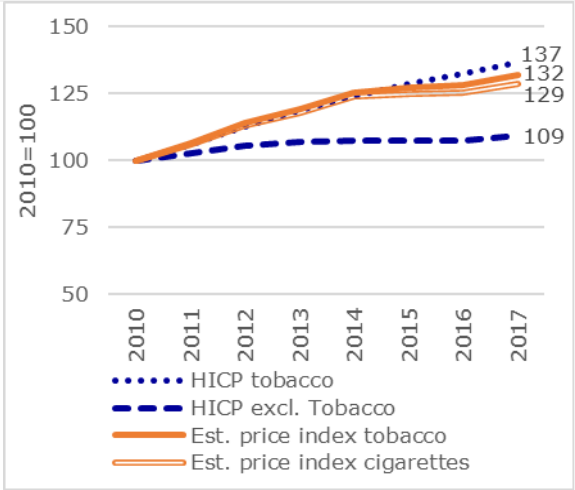
➢ **PRICE TRENDS**

In the period 2010-17 the weighted average price of cigarettes in the EU has increased at a pace of 3.7% year-on-year. This is slower than in the previous 2006-10 period, where the growth rate was 7.3%.[123] In nominal terms, the WAP in Member States moved from EUR 183 per 1000 sticks in 2010 (simple average) to EUR 244 in 2017. Figure 3.11 shows the trends of other relevant price variable, namely the minimum and maximum price registered on national markets, and how the overall price indexes of cigarettes and tobacco have evolved in the period concerned. The analysis of trends revealed that:

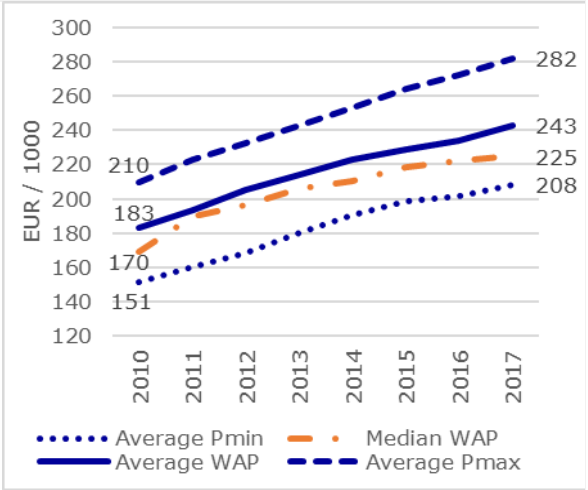
- The price of tobacco products has grown at a much steeper pace than the rest of consumer's goods. The Eurostat ***harmonised index of consumer prices (HICP)*** for tobacco products soared 37% between 2010 and 2017, while the HICP for all products except tobacco increased by 9% only. As Figure 3.11. A shows, the Study estimates based on empirical data (WAP levels and quantities released for consumption for the different categories of tobacco) are largely coherent with the HICP, with the exception of the 2016-17 period where our calculated price index is a few points smaller than HICP.
- The ***price index of cigarettes*** appears slightly below the total tobacco index - i.e. +29% in the 2010-17 period – since the price of other products, especially FCT, soared at a faster pace. But since cigarettes still represent the bulk of tobacco expenditure (some 85% in 2017, down from 89% in 2010) the overall tobacco price index remains mainly determined by cigarettes prices.
- The ***EU average price trends*** have been similar for the four metrics considered, i.e. lowest, WAP and highest price on MS markets and the median value of the MS WAP distribution (Figure 3.11.B). A partial exception is represented by P_{min} (EU-average lowest market price) that increased 5% points faster than the other metrics.

Figure 3.11 – Overall trends in the price of cigarettes in the EU

A) Price indexes of tobacco and cigarettes in the EU (2010=100)



B) Cigarettes price trends in the EU (simple average of MS price levels)



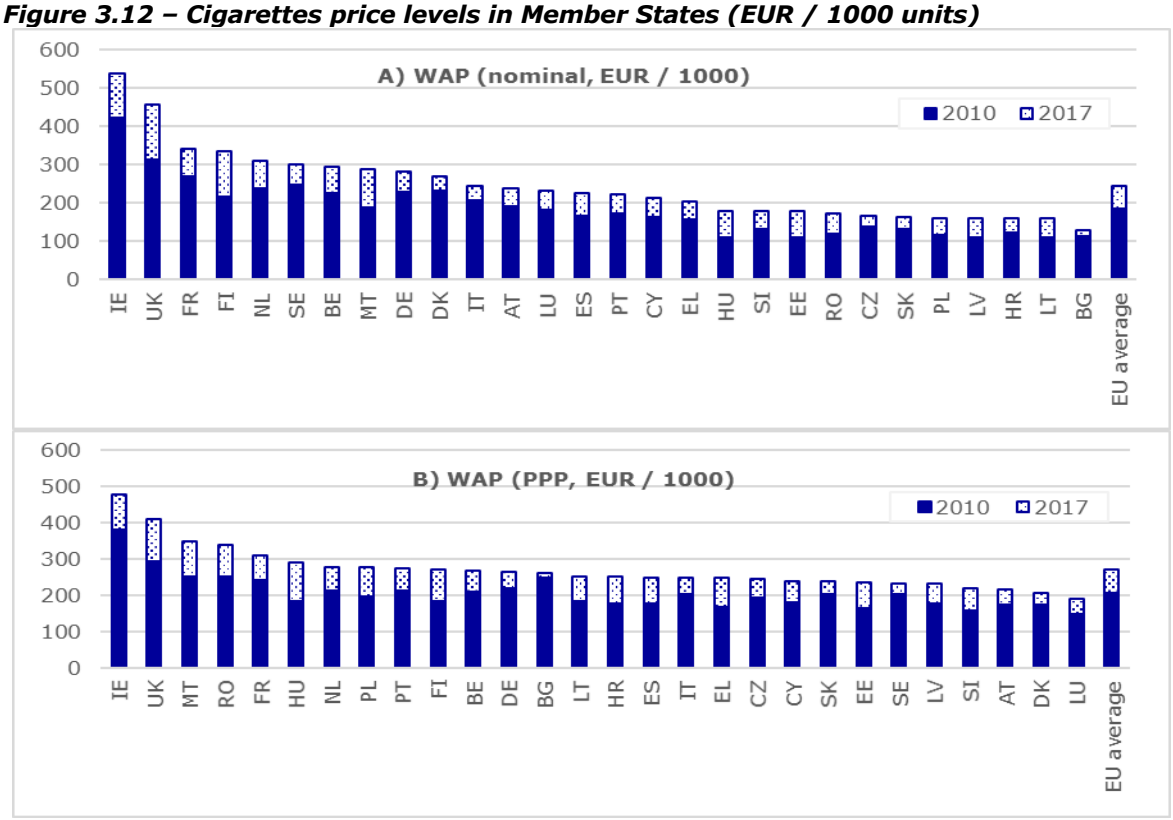
Source: *Author's elaboration based on EDT, Euromonitor International (for P_{max} and P_{min}) and Eurostat.*
Legend*: HICP=harmonised index of consumer prices; WAP=weighted average price; P_{min}=lowest market price (based on store-check observations), P_{max}=maximum price on the market (based on store-check observations).*
Notes: *P_{min} and P_{max} data for CY, MT, and LU not included due to data missing on Euromonitor International database. The Euromonitor International store-check generally cover brands accounting for the large majority of the market (i.e. generally exceeding 85%). Since Euromonitor International price data are collected at the beginning of each year, while the WAP refer to the entire year, the reported indicators are not fully comparable. All prices have been converted in EUR. Some distortions are possible due to the fluctuation of exchange rates (the decline of price index in 2015-16 is partly attributable to the depreciation of GBP).*

[123] Figures represent the compounded annual growth rate (CAGR) in the average price of cigarettes weighed by MS market size (i.e. weighted average of MS WAP).

The above diagrams describe the overall average trends across the EU, but the patterns in individual geographical markets have been uneven. First of all, it should be noted that price levels differ significantly between MS in nominal terms, but less so when measured in ***purchasing power parities*** (PPP) (Figure 3.12). More specifically:

- In 2017, the ratio between the highest and the lowest WAP registered in EU countries was 4.2 in nominal terms, but only 2.5 in PPP terms. The same holds true also if the extremes of the distribution are dropped. The ratio between the 90% and the 10% percentiles of the WAP distribution was 2.1 in nominal terms and 1.6 in PPP terms.
- In nominal terms, the differences between the extremes of the distribution have enlarged since 2010 (the ratio moved from 3.8 to 4.2), but remained stable in PPP terms. If extremes are not considered the pattern appears mixed, i.e. declining in nominal terms (from 2.3 to 2.1) but increasing in PPP terms (from 1.5 to 1.6).
- When measured in PPP terms the ranking of MS change substantially. For instance, in three MS with nominal low prices like RO, HU and PL cigarettes are actually more expensive than EU average in real terms. Conversely, SE, AT, DK and LU feature among the least expensive countries in PPP terms.

Figure 3.12 – Cigarettes price levels in Member States (EUR / 1000 units)



Source: *Author's elaboration based on EDT and Eurostat (price level indices for Gross Domestic Product).*
Legend*: WAP=weighted average price; PPP=purchasing power parities.*

Additional MS-level price indicators are reported in Table 3.16 below. Some of these indicators are not reported by MS authorities but are based on Euromonitor International store-check observations and should therefore be considered as indicative.[124] The salient findings of the price trends analysis can be summarised as follows:

[124] The Euromonitor International store-check database has required some data cleaning to correct some values that appeared implausible. Furthermore, the database covers the vast majority but not the entire market, so it is possible that the P_{min} or P_{max} indicators correspond to not-covered brands. The brands covered changes every year, so the indicators are calculated on heterogenous samples. Finally, as discussed, store-checks are generally conducted at the beginning of the year so they may underestimate the actual average price levels registered during the entire year.

- The WAP growth rate year-on-year ranged from 2.5% or less (BG, DK, and IT) up to in excess of 6% (MT, HU, FI and EE), with an EU average of 4.2%.
- The 'lowest market price' (P_{min}) has grown on average at a higher rate, i.e. 5.2%. The highest growth was registered in RO and BG (exceeding 10%), the lowest in DE and SE (below 2.2%). Therefore, the average P_{min} and WAP levels have converged overtime. In 2017, the P_{min} accounted for 86% of the WAP, up from 83% in 2010.
- Instead, the 'highest market price' (P_{max}) increased on average at the same rate of WAP (4.2% year-on-year), so no convergence was registered.
- As a further consequence of the above trends, a certain compression of the price bandwidth has been registered. The ratio between P_{max} and P_{min} has decreased on average by 5% points in the 2010-17 period. Nonetheless, the situation on national markets is uneven. We have elaborated an overall index to compare the compression of the price bandwidth between MS. Assuming the EU average level equal to 100, high index levels (corresponding to larger price bandwidth) can be found in EL, LT, LV, HR and the UK, while low index levels are registered in RO, PT, IE and FR.
- Focusing on the mid/low price segments of the market, a price compression trend of similar extent is registered (the WAP/P_{min} ratio reduced by 5% points). Again, MS patterns differ, with particularly high compression in NL, FR, BG, PL and PT.
- Combining the evidence from the above points, it emerges that overtime the WAP has been slowly sliding towards the P_{min}. Since the WAP is at the same time a measure of price and of quantities, and considering that prices have increased faster in the low segments of the market, such trend can be explained by a certain generalised shift in consumers' preferences toward lower price categories.

Table 3.16 – Price trends of cigarettes in Member States

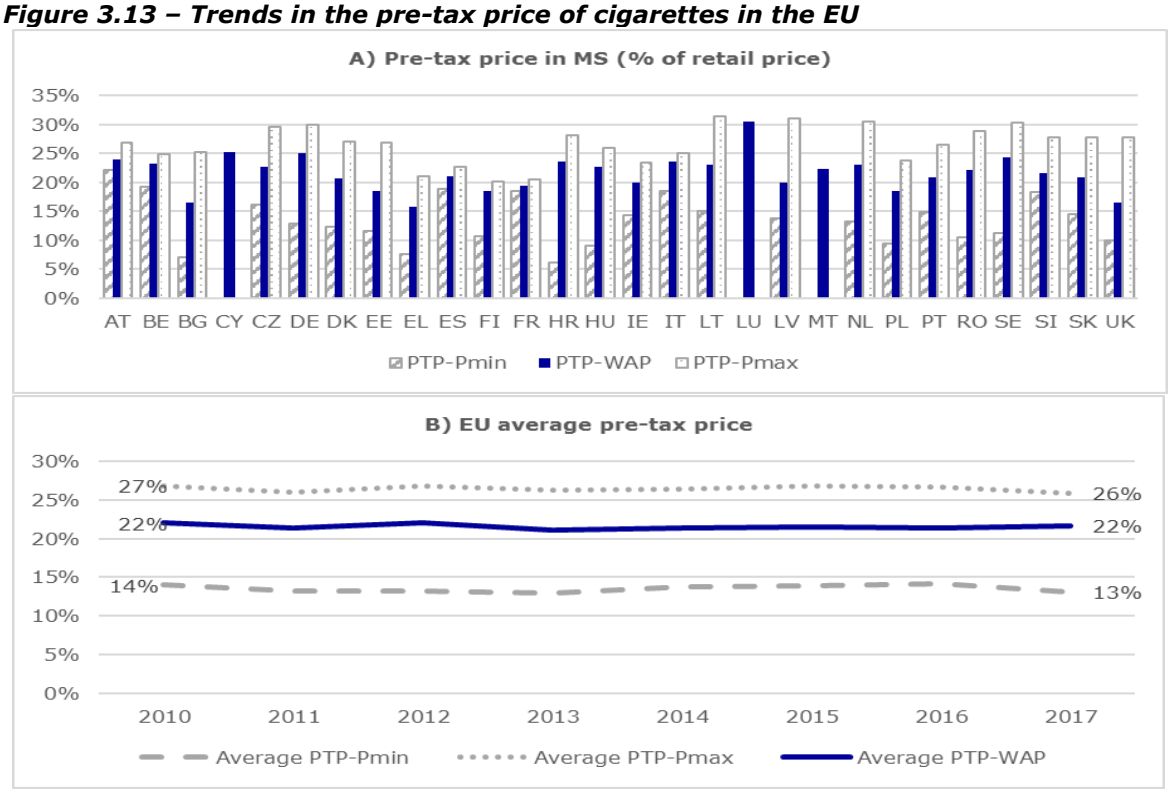
	P_{min}		WAP		P_{max}		Overall bandwidth index	Mid/low segment bandwidth index
MS	**EUR / 1000**	**CAGR 2010-17**	**EUR / 1000**	**CAGR 2010-17**	**EUR / 1000**	**CAGR 2010-17**		
AT	217	3.3%	238	3.3%	275	3.2%	82	64
BE	241	3.6%	294	3.8%	340	4.7%	114	130
BG	118	10.7%	128	1.9%	163	3.5%	120	60
CY	..	..	214	3.9%	..	..	..	..
CZ	148	4.1%	165	2.8%	196	2.0%	97	75
DE	223	2.0%	282	3.0%	300	1.9%	92	150
DK	235	3.7%	270	2.3%	309	2.4%	92	92
EE	143	8.1%	178	7.0%	200	4.5%	108	140
EL	165	7.4%	205	3.9%	250	5.8%	140	140
ES	205	6.4%	226	4.5%	253	5.6%	72	67
FI	272	5.3%	335	6.5%	355	5.1%	84	135
FR	315	3.1%	340	3.4%	358	3.2%	43	54
HR	105	2.6%	160	4.0%	194	1.8%	188	246
HU	154	8.6%	180	7.2%	194	6.0%	76	104
IE	473	2.9%	538	3.5%	579	4.3%	66	87
IT	217	3.3%	244	2.5%	275	3.2%	80	80
LT	131	9.8%	159	5.7%	200	5.2%	146	127
LU	..	..	230	3.5%	..	..	..	..
LV	138	6.7%	160	5.4%	235	6.1%	204	99
MT	..	..	287	6.2%	..	..	..	..
NL	288	4.9%	309	3.9%	375	5.5%	95	50
PL	147	6.6%	160	4.7%	190	6.2%	91	60
PT	205	4.1%	224	3.8%	245	3.3%	60	60
RO	151	10.1%	173	5.4%	186	5.5%	68	91
SE	232	2.1%	302	2.8%	328	2.7%	106	165
SI	160	5.5%	178	4.4%	210	5.4%	94	74
SK	137	2.5%	162	2.9%	175	0.7%	79	110
UK	390	5.6%	456	5.5%	616	6.8%	167	104
EU	**208**	**5.3%**	**243**	**4.2%**	**280**	**4.2%**	**100**	**100**

Source: *Author's elaboration based on EDT, and Euromonitor International (price data for P_{max} and P_{min}).*
Legend*: WAP=weighted average price; P_{min}=lowest market price; P_{max}=maximum price on the market; CAGR=compounded annual growth rate; (..)=data not available.*
Notes: *The 'overall bandwidth index' is calculated as (P_{max}-P_{min})/WAP assuming the EU average=100. Similarly, the 'Mid/low segment bandwidth index' is calculated as (WAP-P_{min})/WAP assuming the EU average=100. All prices have been converted in EUR. Some distortions are possible due to the fluctuation of exchange rates.*

To conclude, we have reviewed the ***trends of the 'pre-tax price' (PTP)*** at both the EU and the MS level. To allow comparison between countries and overtime, the PTP is defined here as a share (in %) of the retail selling price, and is calculated as the difference between the retail selling price and the total tax burden divided by the price itself. We have measured the PTP at three levels in each MS: the WAP, the lowest market price (P_{min}) and the highest market price (P_{max}). To enhance the consistency between price and tax data, the Euromonitor-based estimates for P_{min} and P_{max} have been adjusted as explained in Figure 3.13 below. The results of the analysis indicate that:

- The PTP share varies according to price categories and increases proportionally with the price level. In 2017, the EU average value for the PTP share ranged from 13% at P_{min} level, to 22% at WAP level, to 26% at P_{max} level. This can be preliminarily attributed to the effects of the specific component of taxation, since the ad valorem incidence is by definition constant for all price categories.
- As Figure 3.13.B shows, these values did not change for none of the price categories considered in the period considered suggesting that the PTP, which is also a proxy for industry's margin, is not flexible.
- The PTP share at WAP level ranges between MS from as low as 15% (EL) to more than 30% (LU). Considering P_{max}, the lowest PTP shares in the EU are found in FI and FR (ca. 20%), the highest in SE, NL, LV and LT (above 30%). In some countries (FR, ES, and AT) there is limited difference in the PTP shares at the different price levels, while this is substantial in others (BG, HU, LV, NL, HR, RO, SE and UK).

Figure 3.13 – Trends in the pre-tax price of cigarettes in the EU



Source: *Author's elaboration based on EDT, and Euromonitor International (price data for P_{max} and P_{min}).*
Legend*: PTP= pre-tax price (defined as the retail selling price minus the total tax burden); WAP=weighted average price; P_{min}=lowest market price; P_{max}=maximum price on the market.*
Notes: *In these diagrams, the P_{min} and P_{max} values have been adjusted to consider that Euromonitor International store-checks are conducted at the beginning of the year, so they do not include price increases occurring later in the year. As a corrective measure, for every year Y the average value between Y and Y+1 is reported. In few instances, the PTP at P_{min} level returned a negative value. This can be due to various reasons: the disparities in the reporting period of prices and taxes, 'forestalling' practices, or measurement errors. When the issue seemed caused by incorrect measurements (i.e. major 'outliers' in the price distribution) we have deleted the data, otherwise we have assumed the pre-tax-price equal to zero. Figure A reports the average values for the 2010-17 period. The pre-tax price for P_{min} and P_{max} values in Figure B does not include MT, LU and CY.*

3.3.2 Fine cut tobacco

- **OVERALL EXCISE DUTY LEVELS**

In the 2010-17 period, there have been two increases of the EU minima for FCT. The first (in 2013) brought the fixed minimum amount from EUR 40 to EUR 47 per Kg and the relative minimum rate from 40% to 43% of retail selling price at WAP, the second (in 2015) brought the fixed amount to EUR 54 and the relative minimum to 46%. A further increase occurred in January 2018 (new minima: EUR 60 and 48% of WAP, respectively) but it is not included in the analysis since there was not yet any evidence available on its effects at the time of writing. Unlike cigarettes, the two EU minima are set as alternative conditions, which means that it is sufficient for MS to comply with either of the two requirements. As shown in Box 1.2 (Section 1.2) this may create situations where the compliance with the relative minimum requirement at WAP level may allow derogating from the fixed minimum requirement for low-segment products (not possible in the case of cigarettes).

Figure 3.14 below shows how the average excise duty for FCT has evolved in the EU, in relation to the corresponding EU minima. In particular:

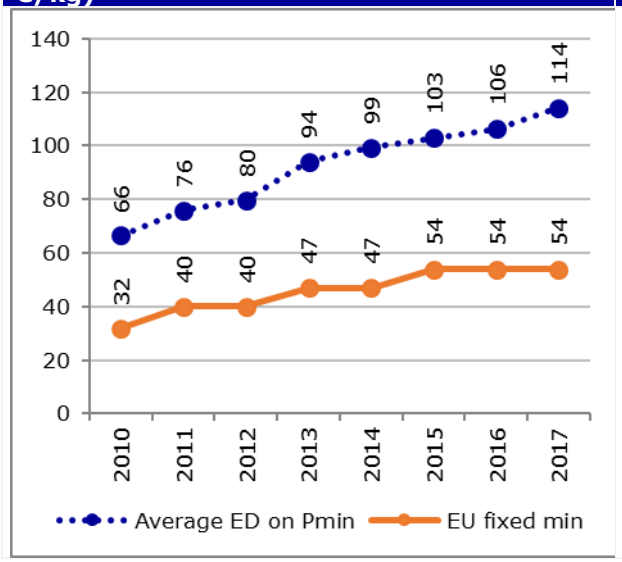
- In monetary terms, the average excise duty levied on the lowest price category (P_{min}) of FCT has soared faster than the EU minimum fixed amount increase, moving from EUR 66 in 2010 to some EUR 114 in 2017. The gap has increased both in absolute terms and, to a smaller extent, in relative terms, with the EU fixed minimum accounting for about half of the EU average.
- Conversely, there has been some convergence between the EU relative minimum trend and the average incidence of excise duty at WAP level (EDY). Between 2010 and 2017 the average incidence has increased by 5% points (from 50% to 55%) while the EU minimum rate increased by 10% points.
- The combination of the above trends can preliminarily suggest a trade-off in the compliance with EU minima requirements, with MS increasingly able overtime to meet the fixed minimum and, as a side effect, less in the need of meeting the relative minimum.

It should be noted that the two metrics are not entirely comparable since the fixed minimum is measured at the level of the lowest price category while the relative minimum is measured at WAP-level. However, the difference between the average excise duty levels at WAP and P_{min} amounted to only 1-2 EUR / Kg throughout the period, so these metrics can be considered as substantially aligned. Secondly, it is important to highlight some important data limitations concerning specifically FCT, which add up to the general issues regarding the sources used (EDT and Euromonitor International's store-checks) described in the corresponding section on cigarettes: (1) not all MS report WAP data for FCT as envisaged by regulation; (2) the number of FCT products surveyed by Euromonitor International is much smaller than for cigarettes, affecting the precision of the P_{min} indicator.[125]

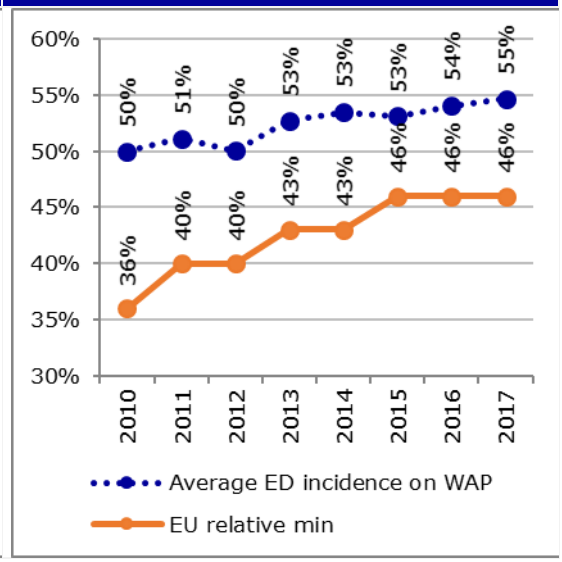
[125] An issue mitigated by the fact that various MS apply a MED, so the excise duty level at P_{min} is not linked to the actual price.

Figure 3.14 – EU minimum rates for FCT and excise duty trends (2010-17)

A) EU minimum fixed amount and excise levied on the lowest price category (in €/kg)



B) EU relative minimum rate and excise incidence at WAP (in %)



Source: *Author's elaboration based on EDT, integrated with Euromonitor International-based estimates where required.*
Legend: *WAP=weighted average price; ED on P_{min}=excise duty levied on the lowest price category of cigarettes; ED incidence at WAP=incidence (in %) of the excise duty levied at the WAP level.*
Note*: WAP data for CY and MT until 2016 and P_{min} for CY, LU, MT and RO unavailable (where feasible ED on P_{min} was assumed coinciding with MED).*

Table 3.17 – Excise duty applied to FCT in Member States

MS	EDY 2017	CAGR 2010-17	EDY/WAP 2017	TTB/WAP 2017
AT	100	12.0%	58.3%	74.9%
BE	79	9.6%	53.4%	70.8%
BG	78	6.2%	49.8%	66.5%
CY	150	23.5%	66.2%	82.1%
CZ	84	6.9%	61.3%	78.6%
DE	71	4.2%	48.9%	64.9%
DK	106	4.7%	49.8%	69.8%
EE	71	12.1%	52.0%	68.7%
EL	170	7.9%	68.8%	88.1%
ES	99	10.2%	57.7%	75.1%
FI	138	9.4%	67.9%	87.3%
FR	174	8.3%	61.5%	78.2%
HR*	80	20.5%	54.5%	74.5%
HU	56	11.1%	54.7%	76.0%
IE	310	5.0%	63.0%	81.7%
IT	120	6.7%	61.0%	79.0%
LT	54	7.7%	31.0%	48.4%
LU	49	3.4%	46.3%	60.9%
LV	62	9.7%	33.5%	50.9%
MT	122	7.7%	65.6%	80.8%
NL	99	7.6%	55.8%	73.1%
PL	73	7.0%	57.1%	75.8%
PT	169	21.7%	65.2%	83.9%
RO	86	0.9%	37.6%	53.6%
SE	193	3.3%	53.3%	73.3%
SI	101	16.3%	63.4%	81.4%
SK	71	1.5%	42.2%	58.8%
UK	240	7.8%	51.4%	68.1%
EU	**114**	**9.0%**	**54.7%**	**72.3%**

Source: *Author's elaboration based on EDT, integrated with Euromonitor International-based estimates where required.*
Legend: *WAP=weighted average price; EDY=excise duty levied at WAP level; TTB=total tax burden at WAP level (excise duty + VAT); CAGR=compounded annual growth rate.*
Note*(*) figures for HR refer to 2012-17.*

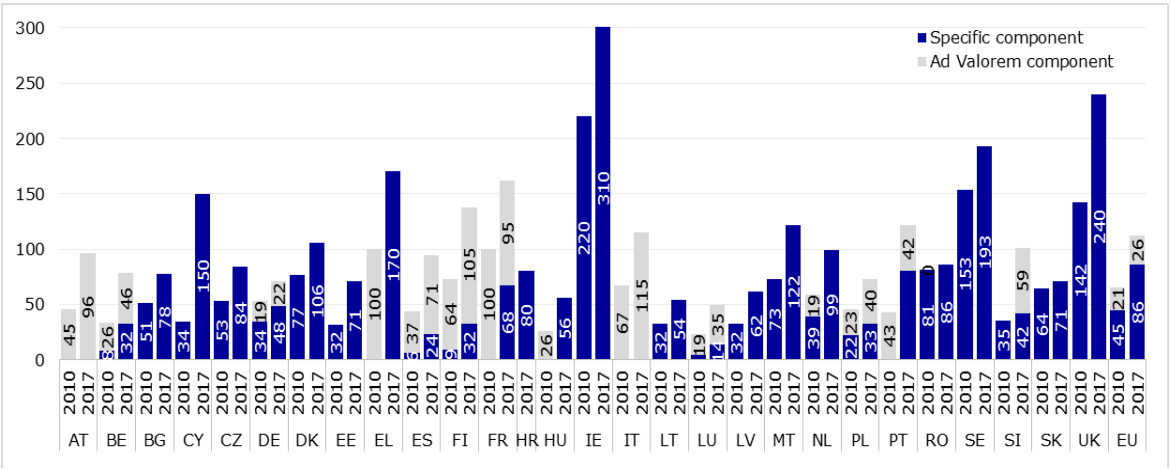
The ***increase in the taxation levels*** was fairly uneven across countries (Table 3.17 above). On average the excise duty at WAP (EDY) inclusive of MED (minimum excise duty) has grown by ca. 9% year-on-year, with some countries registering a steep 15% annual increase (CY, HR, PT and SI), while in others the EDY growth remained below 5% (DE, DK, LU, RO, SE, and SK). The 'gap' between the lowest and the highest taxing MS has widened in monetary terms, from EUR 193 in 2010 to EUR 261 in 2017, but reduced in relative terms, with the ratio between the highest and the lowest EDY declining from 8.2 in 2010 to 6.3 in 2017. These findings remain valid if the extreme values of the EDY distribution are dropped.[126]

With respect to the ***incidence of excise duty and of the total tax burden*** (including VAT) on retail prices at WAP level, FCT remains below the level of cigarettes, with an average EDY/WAP incidence of 55% and TTB/WAP incidence of 72%. Incidence rates appear particularly high in CY, EL, FI, MT and PT, while they are well-below EU-average in LT, LV, RO and SK.

➢ EXCISE DUTY STRUCTURE AND MED

As regards the excise duty structure for FCT, the Directive establishes that MS are free to apply a fully specific regime, a fully *ad valorem*, or a mixed structure regime. In 2017, the majority of countries (17 MS) were applying a fully specific excise duty, some 9 opted for a mixed structure and only two MS had a fully *ad valorem* regime in place (see Figure 3.15). As compared to 2010, there have been some changes from fully *ad valorem* to fully specific (EL, HU) or to mixed structure (FR, PT), and in one case (SI) a shift from a fully specific to a mixed structure regime.

Figure 3.15 – Excise duty of FCT – specific and ad valorem component EUR per Kg



Source: *Author's elaboration based on EDT data, integrated with Euromonitor-based estimates where required.*

The greater recourse to specific taxation overtime can be interpreted as a general tendency to reduce the affordability of FCT by increasing the amount of tax levied on the low-price segments of the market. Coherently with this policy orientation, all MS (except PL) that have a mixed or an *ad valorem* structure also ***apply a minimum excise duty (MED)***, in line with Art 14.1 of the Directive (see Figure 3.16 below). Overtime, the number of MS applying a MED (including similar mechanisms like the 'minimum total tax') has remained substantially stable in the 10-12 range.

[126] The ratio between the 0.9 percentile and the 0.1 percentile of the distribution reduced from 3.6 to 3.0 between 2010 and 2017.

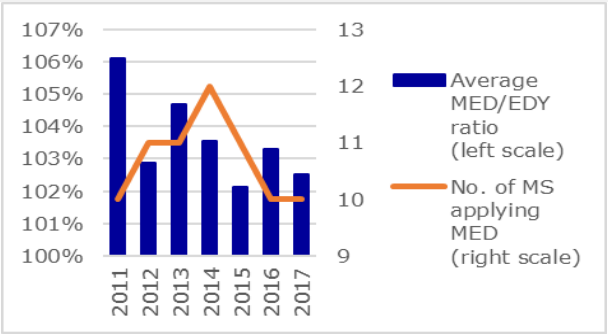
Unlike cigarettes, where MED levels are generally close but below the excise yield at WAP level (EDY), in the case of FCT the there is a greater variance and, on average, the MED exceeds the EDY (102.5% in 2017).

Figure 3.16 – The application of MED on FCT in EU countries

A) MED applied in MS (2017)

MS	MED (€/1000)	MED/EDY ratio
AT	100.0	104%
BE	66.1	84%
DE	70.9	100%
ES	98.8	104%
FI	128.5	93%
FR	168.0	104%
IT	120.0	110%
LU	47.0	95%
PT	169.0	139%
SI	92.0	91%

B) Trends in the application of MED in the EU



Source: *Author's elaboration based on EDT data on WAP and excise duty levels, integrated with Euromonitor-based estimates where needed.*
Note: *the average data in Figure B are calculated on the countries applying MED in the year considered. It is not clear whether the MED level reported in EDT for certain countries (i.e. IT and DE) refer to special MED mechanisms or have been converted into ordinary MED.*

- **PRICE TRENDS**

In the 2010-17 period, the average price of FCT in the EU has grown at a pace of +5.9% year-on year,[127] from EUR 138 / Kg to EUR 206 / Kg. As Figure 3.17.A shows, the EU average lowest market price (P_{min}) of FCT has been increasing at a higher pace (9.3% year-on-year) that is more directly related to the tax increase rate of 9.0% described in the previous Section. In this sense, the 'convergence' in the P_{min} and WAP levels shown in the diagram below can be explained by a shift of the demand of FCT towards the lower segments of the market – a trend that is compatible with the growing market share of the generally less expensive ***'make-your-own' volume*** tobacco at the expenses of the traditional ***'roll-your-own'*** tobacco.[128] Such trend was investigated in the framework of the previous EA 2018 study, which showed how in a few years make-your-own tobacco (including 'volume' and 'non-volume' products)[129] has overcome 'roll-your-own' tobacco in countries like DE, FR and IT, and represents the near totality of the FCT market in HU.[130]

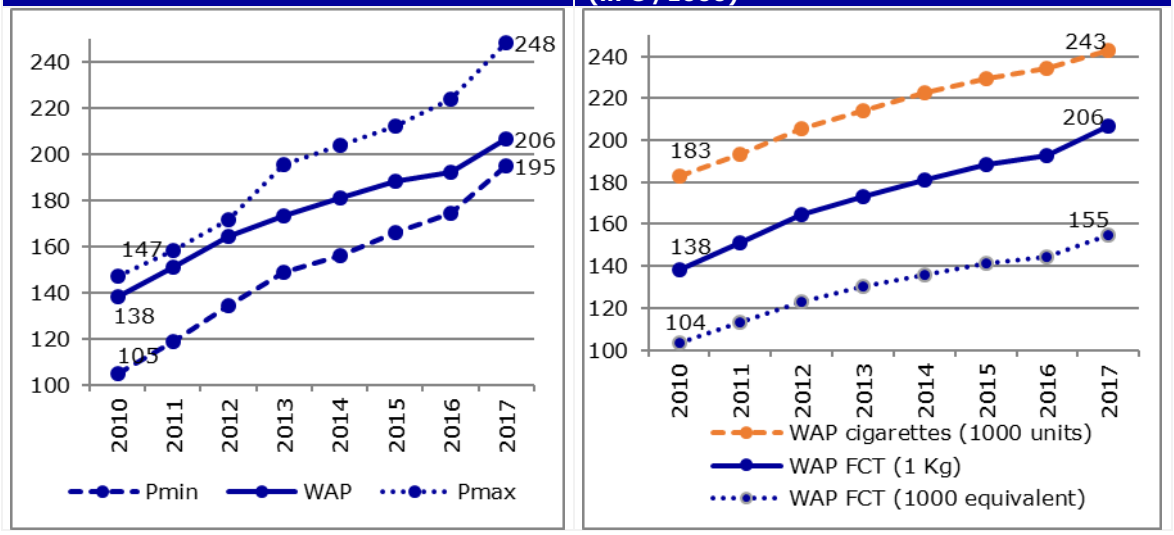
The FCT price levels have grown faster than cigarettes' ones, so a certain ***convergence*** has occurred over the years (see Figure 3.17.B). The price difference between 1000 cigarettes and one Kg of FCT in 2010 was EUR 45, while in 2017 it was EUR 37. In relative terms, the cigarettes/FCT price ratio moved from 1.32 to 1.18. If FCT price is

[127] Figures represent the compounded annual growth rate (CAGR) of the EU simple average of the FCT nominal WAP levels in MS.
[128] Make-Your-Own (MYO) tobacco is intended for the machine-rolling of cigarettes. Specifically, MYO tobacco is used to fill pre-made filter tubes with a simple device to prepare cigarettes that have almost the same appearance of factory-made cigarettes. Roll-Your-Own (RYO) tobacco, instead, is intended for the hand-rolling of cigarettes using a cigarette paper and, possibly, adding a filter. The MYO tobacco has a wider cut and less humidity than RYO. Furthermore, most MYO products – known as 'volume tobacco' – contain 'dry ice expanded tobacco' (DIET), in various proportion. All these characteristics, compounded with specific packaging and commercial claims, make MYO tobacco as a higher value-for-money proposition than RYO. The distinction is however not clear-cut: certain MYO products contain high proportion of DIET, while others do not contain DIET at all, the cut-width and humidity range of products have no solution of continuity, RYO can generally be used with rolling devices. Consistently, there is no formal distinction between MYO and RYO in MS administrative frameworks. See: EA 2018 for a detailed review of MYO and RYO characteristics, consumption patterns and market trends.
[129] i.e. containing or not 'expanded tobacco'. For a technical review see, for instance: http://www.aircodiet.com/images/AIRCO_DIET_Process_Description.pdf
[130] Some exceptions do exist. For instance, in IE and SE, the FCT market is still dominated by 'roll-your-own'.

measured in stick-equivalent (applying a 0.75g=1 stick conversion) the price convergence in monetary terms is not apparent (from EUR 79 of difference in 2010 to EUR 88 in 2017) but is confirmed in relative terms, with the cigarettes/FCT price ratio declining from 1.77 in 2010 to 1.57 in 2017.

Figure 3.17 – Overall trends in the price of FCT in the EU

A) Average price trends in the EU (in €/1000) | **B) Comparing WAP trends of cigarettes and FCT (in € /1000)**



Source: *Author's elaboration based on EDT and Euromonitor International price data for (P_{max} and P_{min}).*
Legend*: WAP=weighted average price, P_{min}=lowest market price (based on store-check observations), P_{max}=maximum price on the market (based on store-check observations).*
Notes: *In Figure B 'FCT 1000 equivalent' sticks are based on a 0.75g=1 stick conversion rate. P_{min} and P_{max} data for CY, MT, RO and LU not included due to data missing on Euromonitor International database. The Euromonitor International store-check generally cover brands accounting for the large majority of the market, however the coverage is smaller than for cigarettes so a greater margin of errors is assumed. For comparability, all prices have been converted in EUR although this entails some possible distortions due to exchange rates fluctuation.*

➢ PRICE LEVEL DIFFERENCES ACROSS MS

FCT price levels and trends may vary significantly across MS. Table 3.18 below displays the key WAP trends and indicators country-by-country, including a comparison with cigarettes price trends. It is important to highlight that figures have to be taken with due caution, since the DG TAXUD EDT series do not report FCT price data for all MS and Euromonitor International's store-checks for these products are generally less accurate than for cigarettes. Taking in consideration these limitations, it is worth highlighting what follows:

- In the 2010-17 period the WAP increase ranged from quite modest levels in SK, SE and especially IE (less than 30% in seven years), to quite steep variations in ES, BE, HU and especially PT (exceeding 80%), with an EU average of 64% (+6.1% year-on-year).
- There remain substantial differences in the price levels between MS. The difference between the lowest and the highest WAP has slightly reduced from was ca EUR 417 per Kg to some EUR 390 in 2017, but if the extremes of the distribution are excluded (the upper and lower 10% percentiles) the monetary gap has seemingly enlarged (from EUR 164 to EUR 199). In relative terms, the ratio between the highest and the lowest levels have in any case slimmed down, from 9.5 to 4.8 (including the extremes of the distribution) or from 3.1 to 2.5 (without the extremes).
- The above price differentials between countries are higher than in the case of cigarettes (see previous Section). Also the trend differs: a quite substantial convergence in the case of FCT *vis-à-vis* a mixed trend for cigarettes.

- The gap between the FCT WAP and the cigarettes WAP in the EU has reduced as a consequence of a generally steeper increase in the FCT price levels. In 2017, the FCT WAP – converted in stick-equivalent using the 0.75g= 1 stick rate - amounted to some 64% of cigarettes' WAP, up by some 10% points from 2010 (the difference declined from EUR 47 to EUR 37 in monetary terms). At the national level, the trend was not homogeneous. As the figures reported in Table 3.18 show, while in some countries the price differential between FCT and cigarettes has notably reduced (e.g. in PT, EL and BG it reduced by more than 20% points), in other countries such differential has seemingly expanded (i.e. IE, UK and EE).
- As of 2017, the price differential remains high in BE, LU, and DE - where the FCT/cigarettes price ratio (in stick equivalent) is lower than 40%. Conversely, in BG, EL, and SE such ratio exceeds 90%. Overall, it can be noted some inverse correlation (coefficient: -0.59) between the market share value of FCT and its price ratio with cigarettes (2010-2017 average). This is coherent with the findings of the analysis of cross-product substitution provided in Section 4.4.1.2.

Table 3.18 – Price trends of FCT in Member States

	WAP 2010	WAP 2017	*var. 2010-17*	FCT/ cigarette ratio 2010*	FCT/ cigarette ratio 2017*	*var. 2010-17*
AT	96.4	171.6	*78%*	38%	54%	*16%*
BE	81.8	147.4	*80%*	27%	38%	*11%*
BG	100.3	156.1	*56%*	67%	91%	*24%*
CZ	98.1	137.2	*40%*	54%	62%	*8%*
DE	101.3	144.9	*43%*	33%	39%	*5%*
DK	160.7	212.7	*32%*	52%	59%	*7%*
EE	94.2	136.9	*45%*	64%	58%	*-6%*
EL	144.8	247.2	*71%*	69%	91%	*21%*
ES	90.1	171.0	*90%*	41%	57%	*16%*
FI	123.2	202.8	*65%*	43%	45%	*3%*
FR	170.3	283.2	*66%*	47%	62%	*15%*
HR	82.8	146.7	*77%*	51%	69%	*18%*
HU	49.2	102.6	*109%*	33%	43%	*9%*
IE	465.9	492.7	*6%*	83%	69%	*-14%*
IT	120.1	196.8	*64%*	44%	60%	*17%*
LT	108.7	174.5	*61%*	75%	82%	*7%*
LU	60.3	106.2	*76%*	25%	35%	*10%*
LV	112.1	185.0	*65%*	76%	87%	*11%*
NL	116.1	178.0	*53%*	37%	43%	*6%*
PL	73.9	128.1	*73%*	48%	60%	*12%*
PT	85.7	259.3	*202%*	37%	87%	*50%*
SE	288.1	361.6	*26%*	87%	90%	*3%*
SI	99.3	159.3	*60%*	56%	67%	*11%*
SK	133.2	168.6	*27%*	75%	78%	*3%*
UK	336.6	467.5	*39%*	81%	77%	*-4%*
EU	**135.7**	**205.5**	***64%***	**54%**	**64%**	***10%***

Source: *Author's elaboration based on EDT with integrations based on Euromonitor International data where needed (in such cases the WAP is based on a sample of most popular products and may not be accurate).*
Legend*: var.=variation (expressed in percentage points).*
Notes: *(*) the FCT/cigarettes price ratio is expressed per 1000 equivalent sticks using for FCT a conversion rate of 0.75g=1 stick. The figures available for CY, MT and RO appeared incomplete and poorly reliable and are therefore not reported.*

3.3.3 Cigars and cigarillos

➢ **OVERALL PRICE AND TAX LEVEL TRENDS IN THE EU**

The 'cigars and cigarillos' excise category includes a vast range of products of different shapes and sizes, manufactured with different varieties of tobacco and different production processes. The products falling under this category are quite heterogeneous but have traditionally in common a few characteristics that distinguish them from cigarettes, including the variety of tobacco used, the labour-intensive production

processes, the relatively small scale of the businesses involved, and the profile of consumers (mostly male aged 35+) and consumption patterns (mostly low-frequency or occasional). The ***distinction between cigars and cigarillos*** is primarily commercial, and essentially relates to the unit weight of products: cigars generally weigh 2.5-3.0g (sometimes much more than that), while cigarillos are mostly in the 1.2-1.5g range. However, there is no discontinuity in the range of available products so it is difficult to draw a precise line. Furthermore, the weight of these products has been steadily decreasing overtime so the demarcation line has possibly been moving. More importantly, the structure of national markets is dissimilar so a one-size-fits-all demarcation line applicable to all EU countries is in any case unwarranted. Coherently, there is no formal distinction between cigars and cigarillos in both the excise and customs classification.

Nonetheless, for the purpose of this Report, it is useful to distinguish whenever possible (and considering the blurred demarcation line) between cigars and cigarillos, since price and tax levels can be radically different. To this end, we rely here on the estimates elaborated under the previous EA 2018[131], which were primarily based on Euromonitor International data, triangulated – where appropriate – with industry own estimates and/or own estimates drawn from tax revenue data (some MS report revenues from cigars and cigarillos separately). In this respect, it is important to underline that the distinction used in this Study is purely operationally-oriented, i.e. aimed at describing how markets have evolved overtime, and that it does not imply any consideration or suggestion regarding establishing separated tax regimes.[132] Secondly, since data are based on mixed sources and often required some modelling, they are subject to a non-negligible margin of error and need to be taken with caution.

The overall ***price and tax trends*** for cigars and cigarillos are described in Figure 3.18 below. In particular:

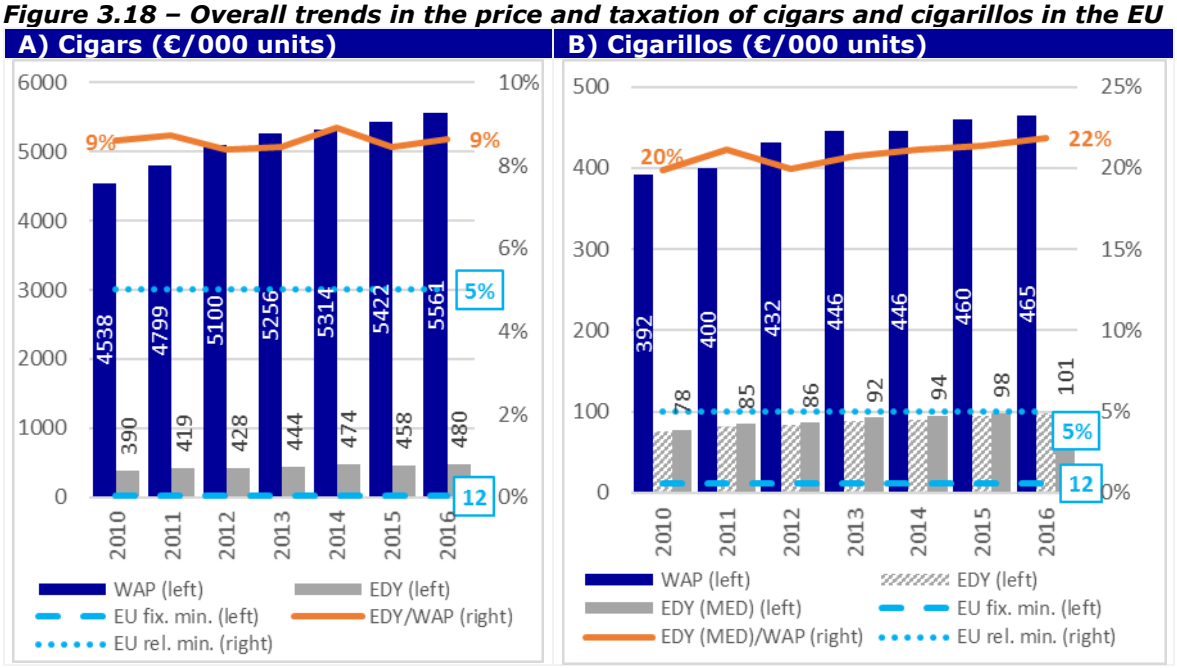
- There is a difference of scale in the price of the two sub-categories with cigars more than 10 times more expensive than cigarillos on average. In the 2010-16 period, the estimated WAP of both products has increased at nearly the same pace (ca. 3.4% for cigars and 2.9% for cigarillos year-on-year).
- Tax levels have increased at the same pace of prices in the case of cigars but not in the case of cigarillos. In the 2010-16 period the excise duty yield at WAP level (EDY) of cigarillos has increased at a pace of 4.5% year-on-year, i.e. 1.6% points more than the WAP growth rate.
- The incidence of excise duty on price of cigars (at WAP level) has remained stable overtime at ca. 8.5-9%. This is few percentage points above the EU relative minimum of 5%. In monetary term, the excise duty collected on cigars increased from EUR 390 in 2010 to EUR 480 in 2016 per 1000 units (including MS that tax these products per weight instead of per unit, namely CY, IE, IT, LT, PL, and UK). This is well above the EU minimum fixed amount of EUR 12 per 1000 units. Actually, EU minima for cigars and cigarillos refer to entire market and not only to the WAP level. Structured data on the lowest market price of these products are not available, but it can be assumed that the impact of EU minima on the lower segments of the market is obviously greater.
- The incidence of excise duty on price of cigarillos (at WAP level) is higher than that of cigars and has moderately increased overtime, from less than 20% in 2010 to nearly 22%. This figure takes into account also the MED that in at least five MS is

[131] See EA 2018 – Section 3.3

[132] This option was already assessed in details in the previous EA 2018. The Commission has taken up the EA 2018 conclusions in its Report and stated that: '*the Commission supports the recommendation of the external study that there is little rationale for further action on this matter at EU level. Moreover, the directive allows Member States to develop a tax structure reducing the incentive for low-price cigarillos which are competing with cigarettes. Member States could for example introduce or increase specific taxes or a minimum excise duty for this product category.'* See: COM(2018) 17 final.

higher than the excise duty applied at WAP (AT, BE, DE, LU and ES – based on 2016 data). More and more countries have made recourse to the MED - i.e. from three in 2010 to ten in 2016 – or have otherwise raised their tax levels to tackle the issue of 'borderline' or more generally 'low-price' cigarillos.

Figure 3.18 – Overall trends in the price and taxation of cigars and cigarillos in the EU



Source: *Author's elaboration based on EDT (excise duty data) and EA 2018 estimates (based on Euromonitor International), adjusted on the basis of EDT tax revenue data.*
Legend*: WAP=weighted average price, EDY=excise duty yield at WAP level, EDY (MED)=where in some MS the MED is higher than EDY at WAP level, the estimates are based on MED value; EU rel. min.= EU relative minimum rate; EU fix. min.=EU fixed minimum amount,*
Notes: *The EDY/WAP ratio and the EU minima are expressed in % and relate to the right scale, all other indicators are expressed in €/1000 units and relate to the left scale in the diagrams. For countries where cigars and cigarillos are taxed by weigh instead of by number of units (CY, IE, IT, LT, PL, and UK) we have applied a conventional conversion of 1.25g per cigarillos and 2.5g per cigars. Since 2016, PT applies a differentiated MED of EUR 60 on cigarillos and EUR 400 on cigars. For comparability, all prices have been converted in EUR although this entails some possible distortions due to exchange rates fluctuation.*

➢ PRICE AND TAX LEVEL DIFFERENCES ACROSS MS

Having in consideration the above limitations with the reliability of country-level estimates for cigars and cigarillos, a few considerations on the disparities of trends between MS are possible:

- The price difference distribution does not correspond to the price distribution of cigarettes and FCT, seemingly reflecting the different nature of the products commercialised. In particular, low WAP levels can be found in countries where low-price cigarillos used to be commercialised, such as DE, ES and LU. Other low-price countries for cigarillos include LV, LT and HU. In these countries the WAP of cigarillos can be as low as one-third of the WAP registered in low price index countries like BG, HR, RO and SI. As regards cigars price variability seems even higher but may partly reflect issues with the quality of underlying data.
- The excise duty levied on cigarillos at WAP level (inclusive of MED) ranges between less than 10% of retail selling price (in CY, NL, RO, MT and SI) to more than 30% (in DK, EL, FI, UK and IE). In the 2010-16 period such incidence has generally increased but while PT, LT, DE, DK, LV, PL, PT, UK and ES posted a two-digits growth, in CY, HU, FR and SK it apparently declined.

Table 3.19 – Price and taxation trends for cigars and cigarillos in Member States (EUR/1000 units)

	Cigarillos				Cigars			
MS	**WAP 2016**	**CAGR 2010-16**	**EDY (MED)/ WAP**	***Var. 2010-16***	**WAP 2016**	**CAGR 2010-16**	**EDY / WAP**	***Var. 2010-16***
AT	711	4.0%	14.1%	*1.1%*	8000	2.4%	13.0%	*0.0%*
BE	288	3.0%	25.6%	*0.1%*	1880	3.2%	10.0%	*0.0%*
BG	667	-1.7%	20.7%	*2.1%*	3640	-0.9%	3.8%	*0.2%*
CY*	1000	12.2%	9.0%	*-4.7%*	9000	5.6%	1.0%	*-0.1%*
CZ	542	0.9%	11.1%	*2.3%*	7499	0.5%	0.8%	*0.2%*
DE	201	3.9%	28.7%	*18.5%*	3107	1.1%	1.9%	*0.0%*
DK	310	-1.5%	31.7%	*13.8%*	5933	4.4%	11.1%	*0.5%*
EE	290	3.2%	72.7%	*6.2%*	9500	1.9%	2.2%	*0.3%*
EL	380	-4.2%	35.0%	*1.0%*	7240	0.3%	35.0%	*1.0%*
ES	142	1.5%	29.2%	*14.7%*	795	0.9%	15.8%	*1.3%*
FI	662	4.0%	32.0%	*7.0%*	10791	3.6%	32.0%	*7.0%*
FR	394	3.7%	27.8%	*-0.2%*	638	3.0%	26.0%	*-1.6%*
HR	773	..	10.2%	..	10529	..	0.7%	..
HU	169	-10.7%	14.0%	*-14.5%*	6188	3.9%	14.0%	*-14.5%*
IE*	694	4.5%	45.5%	*-3.7%*	1945	4.4%	16.2%	*-1.2%*
IT*	351	2.1%	23.0%	*0.0%*	1541	0.5%	23.0%	*0.0%*
LT*	223	3.4%	13.3%	*7.2%*	7000	7.6%	0.4%	*0.2%*
LU	202	2.4%	11.6%	*1.6%*	1169	2.6%	10.0%	*0.0%*
LV	159	8.7%	26.8%	*10.7%*	9177	5.9%	0.5%	*0.2%*
MT	667	2.6%	3.6%	*0.8%*	2333	6.5%	1.0%	*0.0%*
NL	295	8.0%	5.0%	*0.0%*	365	-0.1%	5.0%	*0.0%*
PL*	320	1.2%	29.0%	*10.4%*	3949	1.4%	2.3%	*0.8%*
PT	541	3.5%	25.0%	*12.7%*	6625	3.2%	25.0%	*12.7%*
RO	774	-1.1%	8.9%	*1.1%*	6165	-2.5%	1.1%	*0.2%*
SE	604	3.0%	23.3%	*1.6%*	11874	2.6%	1.2%	*0.1%*
SI	692	5.6%	6.0%	*1.0%*	8500	6.0%	6.0%	*1.0%*
SK	379	0.9%	18.7%	*-0.6%*	8638	2.3%	0.8%	*-0.1%*
UK*	589	2.7%	56.5%	*17.0%*	1681	3.9%	19.8%	*5.0%*

Source: *Author's elaboration based on EDT (excise duty data) and EA 2018 estimates (based on Euromonitor International), adjusted on the basis of EDT tax revenue data.*
Legend*: CAGR=compounded annual growth rate, WAP=weighted average price, EDY=excise duty yield at WAP level, EDY (MED)=where the MED is higher than EDY at WAP level estimates are based on MED value, var.=variation (in percentage points), (..)=unavailable.*
Notes: *The distinction between cigars and cigarillos market share was inferred – where feasible – from EDT excise revenue data. Otherwise the estimates made in EA 2018 on the basis of Euromonitor International market data were used. (*) For countries where cigars and cigarillos are taxed per weigh instead of per units (CY, IE, IT, LT, PL, and UK) we have applied a conventional conversion of 1.25g per cigarillos and 2.5g per cigars. For comparability, all prices have been converted in EUR although this entails some possible distortions due to exchange rates fluctuation. Since estimates are largely based on modelling and not on official data, figures should be taken as merely indicative.*

3.3.4 Other smoking tobacco

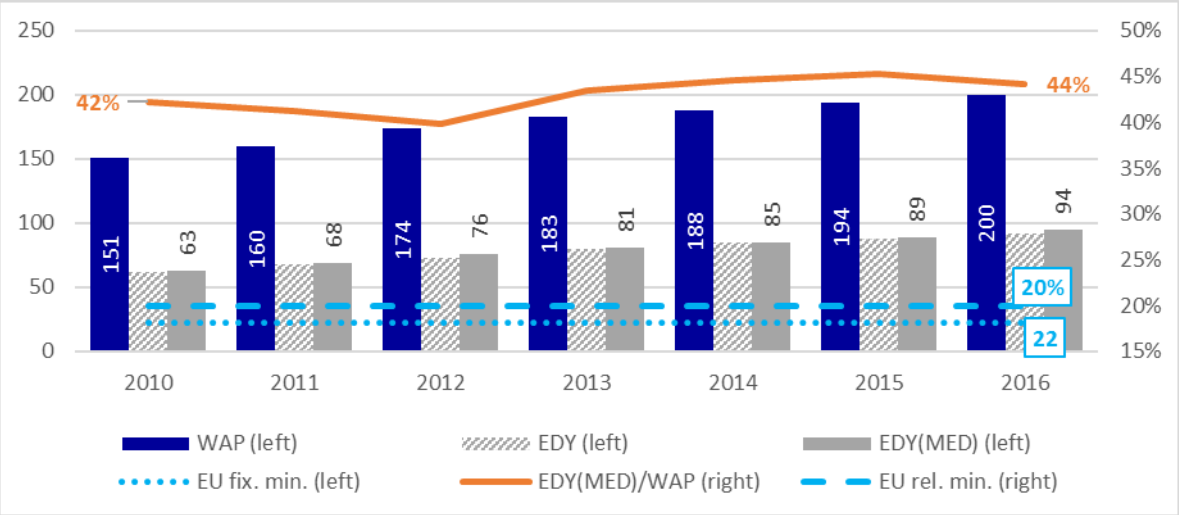
- **OVERALL PRICE AND TAX LEVEL TRENDS IN THE EU**

The remaining category of 'other smoking tobacco' (OST) encompasses any manufactured tobacco products subject to excise duty not included in the previous categories. In practice, it essentially includes pipe tobacco and water-pipe tobacco, but since its appearance on the market some MS classify also heated tobacco in this category (see Section 3.4). Being a rather marginal category there are limited data available on the market and price of these products. Moreover, a large share of the water-pipe tobacco consumed in the EU is arguably not taxed in the EU and often of illegal origin. A more detailed analysis of this issue was carried out in the previous EA 2018 study and is briefly summarised in the previous Section 3.2.2.

Overall, the WAP of OST has steadily increased in the 2010-16 period at a pace of some 4.8% year-on-year, moving from EUR 150 per kg in 2010 to EUR 200 in 2016 (in nominal terms). The average excise duty levied at WAP (EDY) has increased slightly faster, namely by ca. 7% year-on-year, including MED[133]. For this reason, the average incidence of excise on price has registered a moderate increase of 2% points in the period examined.

The average excise duty levied in MS has been well above the EU minima throughout the entire period. In particular, the average incidence fluctuated between 41% and 44% against an EU minimum requirement of 20%, while the monetary yield ranged from EUR 63 to EUR 94 per kg against an EU minimum requirement of EUR 22. Actually, the comparison is not fully consistent since the EU minima for OST are not referred to WAP level, so it is possible that the gap between EU minima and the average excise actually levied by MS on the lowest price category of OST has been smaller.

Figure 3.19 – Overall trends in the price and taxation of other smoking tobacco in the EU



Source: *Author's elaboration based on EDT (excise duty data) and EA 2018 estimates (based on Euromonitor International), adjusted on the basis of EDT tax revenue data.*
Legend*: WAP=weighted average price, EDY=excise duty yield at WAP level, EDY(MED)=where in some MS the MED is higher than EDY at WAP level, the estimates are based on MED value; EU rel. min.= EU relative minimum rate; EU fix. min.=EU fixed minimum amount.*
Notes: *The EDY/WAP ratio and the EU minima are expressed in % and relate to the right scale, all other indicators are expressed in EUR / 1000 units and relate to the left scale of the diagram. For comparability, all prices have been converted in EUR although this entails some possible distortions due to exchange rates fluctuation. CY and HR before 2012 are not included for data unavailability.*

➢ PRICE AND TAX LEVEL DIFFERENCES ACROSS MS

The analysis of tax and price trends of OST at national level has to be taken with some caution, since in many cases data and indicators had to be extrapolated from other variables, such as the excise duty revenues.[134] For about one-third of MS analysed, the market and price data provided in Table 3.20 below have been estimated from other variables. Thirteen MS apply to OST the same tax regime of FCT (in 2017), while in three cases the only difference is the application of MED on FCT. The remaining 12 MS apply different rates, typically higher for FCT.

[133] Some MS apply a MED that is higher than the excise yield at WAP (EDY). For better comparability between countries, in such cases we have considered in the analysis the MED level instead of the EDY as the value of reference for the excise duty levied at WAP level (and related incidence).
[134] This was even more complex for MS that report aggregated figures for the release for consumption of OST and FCT.

The analysis of estimates shows a great price differential between countries, from some EUR 80 per kg in ES up to EUR 411 in SE. In nearly all countries, except DE, the WAP has increased (in nominal terms). The increase was steep in LU, PL and ES (more than 10% year-on-year) and modest in UK and EL (less than 2%). The incidence of excise duty on the WAP also varies. It appears particularly high in MT and EL – where it exceeds 70% of the WAP – while the lowest incidence is found in ES, SK, SI and DE (below 30% of the WAP).

Table 3.20 – Price and taxation trends for OST in Member States (in EUR/kg)

MS	WAP 2016	*CAGR 2010-16*	EDY (MED) / WAP 2016	*Var. 2010-16*
AT	180	*3.6%*	34%	*0%*
BE**	134	*8.7%*	49%	*-2%*
BG*	177	*6.7%*	44%	*1%*
CY*	..	..	..	..
CZ	168	*3.6%*	47%	*8%*
DE	103	*-1.8%*	28%	*2%*
DK	234	*3.4%*	42%	*6%*
EE*	178	*8.1%*	37%	*8%*
EL	222	*1.1%*	71%	*2%*
ES	81	*10.0%*	28%	*2%*
FI	372	*9.1%*	57%	*5%*
FR	166	*2.9%*	55%	*3%*
HR*	162	*2.1%*	40%	..
HU*	130	*2.0%*	34%	*2%*
IE	391	*2.3%*	56%	*3%*
IT	153	*3.8%*	56%	*0%*
LT*	152	*7.0%*	36%	*4%*
LU**	100	*11.3%*	46%	*-28%*
LV*	184	*4.1%*	32%	*9%*
MT*	153	*3.4%*	76%	*18%*
NL*	194	*5.1%*	51%	*7%*
PL*	199	*10.2%*	48%	*-3%*
PT**	173	*7.7%*	..	..
RO*	253	..	34%	..
SE*	411	*3.8%*	47%	*0%*
SI	149	*6.8%*	27%	*5%*
SK*	273	*7.0%*	26%	*-9%*
UK	314	*1.2%*	47%	*17%*

Source: *Author's elaboration based on EDT (excise duty data) and Euromonitor-based EA 2018 estimates, adjusted on the basis of EDT tax revenue data (limitations described in Section 3.3.5 below).*
Legend*: (*)=MS applying the same regime as FCT; (**)=MS applying the same regime as FCT except for the addition of a MED; WAP=weighted average price, EDY=excise duty yield at WAP level, EDY(MED)=where in some MS the MED is higher than EDY at WAP level, the estimates are based on MED value, CAGR=compounded annual growth rate, var.=variation in percentage points, (..)=unavailable.*
Notes: *For comparability, all prices have been converted in EUR although this entails some possible distortions due to exchange rates fluctuation. Since estimates are largely based on modelling and not on official data, certain values appear not reliable and should be taken with great caution.*

3.3.5 Excise duty revenues

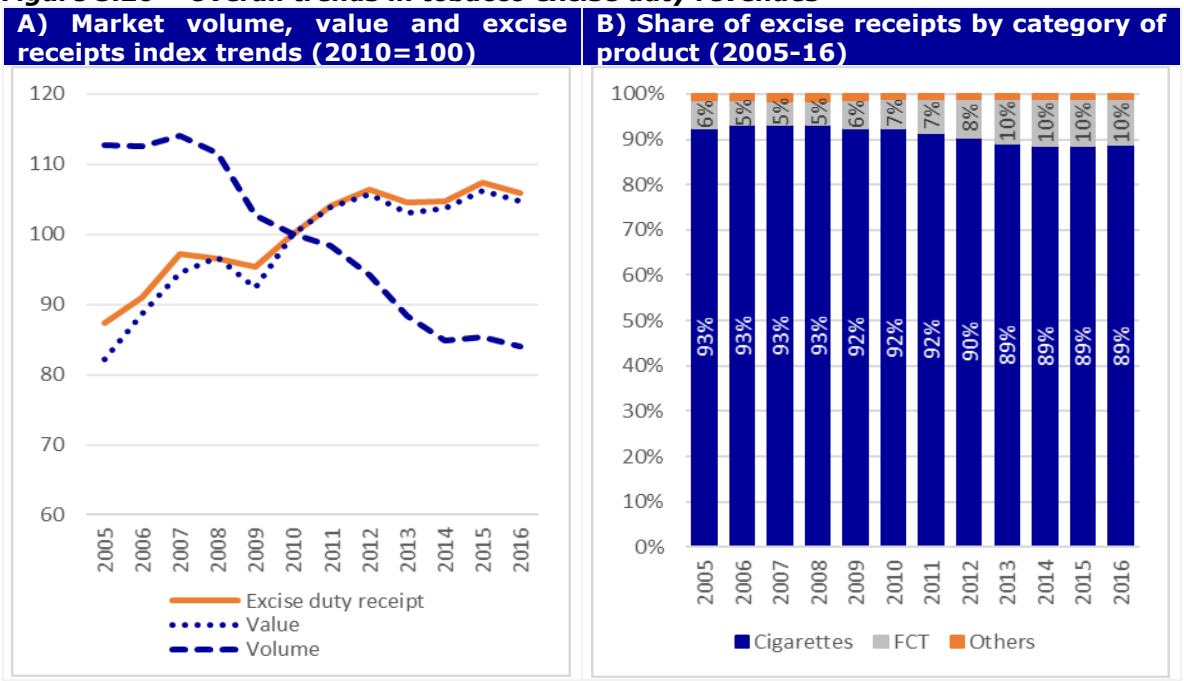
- **OVERALL TRENDS IN TOBACCO TAX RECEIPTS**

In 2016, the excise duty levied on manufactured tobacco in the EU amounted to nearly EUR 82.5 billion. The total receipts have steadily increased since 2005 at an average rate of 1.77% year-on-year. However, since 2010 the growth has slowed down to some 0.96% annually, below the inflation growth registered in the same period in the EU. As Figure 3.20.A shows the excise receipt trend is closely correlated to the aggregated value trend of tobacco products market, while the market size in volume has been

clearly declining in the period considered.[135] In other words, the reduction in the volume of tobacco products sold has been offset by price increase, and excise duties have seemingly grown slightly more than proportionally than prices.

The bulk of tax receipts from manufactured tobacco are collected on factory-made cigarettes (see Figure 3.20.B). In 2016, these accounted for some 88.7% of the estimated total receipts. FCT accounted for about 10.2% of receipts and the remaining 1.2% was divided between cigarillos (0.6%) cigars and OST (0.3% each). The receipts from FCT and cigarillos have notably increased overtime. In particular the share of receipts from FCT in 2016 was 63% greater than in 2010. This seems the result of both a comparatively greater increase of excise rates and prices and of a steady decline in the consumption of cigarettes. OST is the only product category whose receipts have declined overtime.

Figure 3.20 – Overall trends in tobacco excise duty revenues



Source: *Author's elaboration based on EDT data on tax receipts, modelled and adjusted – where needed – based on EDT excise rates and release for consumption data, and Euromonitor International market size data.*
Notes: *The underlying market value and receipts indicators are expressed in Euro using the relevant ECB exchange rate. Some figures may be slightly distorted by fluctuations in the exchange rates. The breakdown of tax receipts by products for the years 2005-10 is often based on modelled estimates and has to be taken with caution. For some MS the tax receipts reported in the EDT series do not correspond to the values reported on the Commission's TEDB database. In general, we have retained EDT data for consistency, but in a very few cases data gaps or inconsistent figures were corrected through TEDB data.*

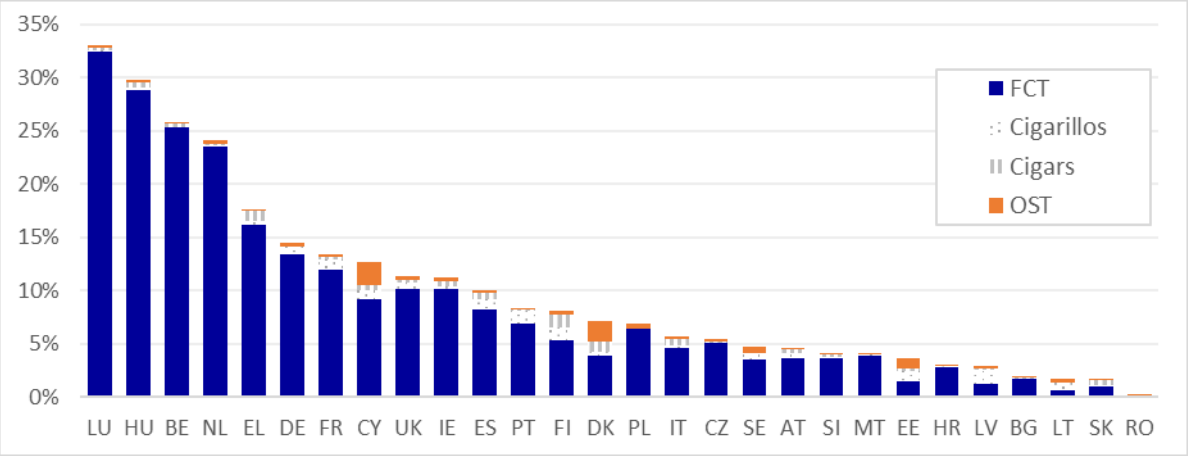
➢ EXCISE DUTY RECEIPTS IN MEMBER STATES

While in all MS the majority of tobacco excise receipts come from cigarettes, in certain countries the excise yield from other tobacco products can be significant. This is especially the case of LU, BE, NL and HU, where the receipts levied on products other than cigarettes are well above 20% of the total (hitting 33% in LU). Conversely, the receipts on these products in BG, LT, SK and RO are negligible, i.e. below 2%. With few exceptions (notably the three Baltic countries), FCT is the second largest source of

[135] The volume aggregated index required to convert FCT and OST volumes from kg to stick-equivalent. For FCT we have used the common equivalence of 0.75g=1 stick. For OST there is no agreed conversion rate, but the results of a review of consumers' fora indicate that '3g per bowl' can be assumed as a plausible average conversion factor for pipe tobacco.

excise revenue after cigarettes.[136] In relative terms, cigars are an important component in DK and FI; cigarillos in PT, FI and the Baltic countries; other smoking tobacco in DK, CY and EE. The figure does not show the receipts from smokeless tobacco that in the case of SE represents the second-largest source of revenue from tobacco products.

Figure 3.21 – Incidence of tax receipts from products other than cigarettes on total tobacco receipts in MS (2016)



Source: *Author's elaboration based on EDT data on tax receipts, modelled and adjusted – where needed – based on EDT excise rates and release for consumption data, and Euromonitor International market size data.*

Finally, Table 3.21 below summarises the trend in tax receipts from tobacco in EU countries and the incidence of such receipts on the total domestic tax revenue.[137] In particular:

- In the majority of MS the total excise receipts have increased overtime, especially in BG, EE, LV, LT and RO where the growth rate has exceeded 6% year-on-year. Conversely, in a few countries the revenue from tobacco excise has declined in the 2010-16 period, and namely in ES, SE, DK, IE and EL.
- Including VAT[138], the total tax revenue from tobacco products in the EU amounted to EUR 106.5 billion in 2016, with the VAT component accounting for ca. 22.5% of the total. Overall, this figure represents some 2.7% of the total tax revenue collected in the EU.
- The incidence of tobacco tax receipts over the total tax revenue varies greatly between MS, going from 0.7% in Sweden up to 14.5% in Bulgaria. In the 2010-16 period, such incidence has generally declined in all MS, losing some 0.3% points on average. The decline was steeper in EL, IE, LU, MT, PL and SK, while BG, EE, LT and RO has seemingly increased their reliance on tobacco tax revenues.

[136] The analysis does not include the tax revenues from *snus* in Sweden, where it represents the second-largest source of revenues after cigarettes. In 2016, tax receipts from snus amounted to SEK 2.7 billion (i.e. 23% of total receipts from tobacco) up from SEK 1.9 billion in 2010 (i.e. 18% of the total). Source: 2013-2016 - Finansdepartmentet (Ministry of Finance), Skatteekonomiska enheten (Tax Economics Unit), Beräkningskonventioner 2010, 2012, 2015 and 2017.
[137] Eurostat data on total tax receipts (D2_D5_D91, ESA 2010 classification).
[138] The VAT revenue in MS has been estimated by multiplying the applicable VAT rate to the estimated value of the market

Table 3.21 – Tobacco tax receipts trends and incidence on MS total tax revenue (2010-16)

MS	ED Revenue 2016 (€ million)	*CAGR 2010-16*	ED+VAT Revenue 2016 (€ million)	ED+VAT / TTR ratio 2016	*Var.** 2010-16*
AT	1,835	*3.4%*	2,356	*2.4%*	*0.0%*
BE	2,351	*2.8%*	3,086	*2.4%*	*-0.1%*
BG	1,178	*7.2%*	1,477	*14.5%*	*0.9%*
CY	189	*-0.8%*	237	*5.2%*	*-0.1%*
CZ	2,014	*3.7%*	2,637	*7.5%*	*-0.2%*
DE	14,182	*0.9%*	18,187	*2.4%*	*-0.6%*
DK	956	*-2.4%*	1,312	*1.0%*	*-0.4%*
EE	192	*8.8%*	248	*5.1%*	*0.4%*
EL	2,504	*-2.5%*	3,296	*6.8%*	*-1.0%*
ES	7,211	*-1.7%*	9,285	*3.7%*	*-0.9%*
FI	968	*5.8%*	1,213	*1.8%*	*0.1%*
FR	11,043	*1.1%*	14,065	*2.2%*	*-0.3%*
HR	592	*3.9%***	795	*..*	*..*
HU	1,008	*1.4%*	1,419	*4.8%*	*-0.2%*
IE	1,098	*-0.9%*	1,405	*2.6%*	*-1.3%*
IT	10,711	*0.1%*	14,015	*2.8%*	*-0.2%*
LT	274	*9.3%*	361	*5.3%*	*0.8%*
LU	533	*1.5%*	684	*4.7%*	*-1.1%*
LV	190	*6.5%*	244	*4.3%*	*-0.5%*
MT	87	*3.7%*	108	*4.0%*	*-1.0%*
NL	2,491	*0.6%*	3,278	*1.9%*	*-0.2%*
PL	4,189	*-0.2%*	5,488	*6.2%*	*-1.4%*
PT	1,513	*1.0%*	2,010	*4.3%*	*-0.4%*
RO	2,057	*7.3%*	2,729	*9.0%*	*0.8%*
SE	944	*-0.3%*	1,280	*0.7%*	*-0.2%*
SI	412	*0.9%*	537	*6.0%*	*-0.2%*
SK	672	*1.5%*	914	*6.2%*	*-1.1%*
UK	11,095	*1.5%*	13,847	*2.1%*	*-0.4%*
EU	**82,488**	***2.3%****	**106,512**	***4.4%****	***-0.3%***

Source: *Author's elaboration based on EDT data on tax receipts, modelled and adjusted – where needed – based on EDT excise rates and release for consumption data, and Euromonitor International market size data. Total tax revenues figures drawn from Eurostat.*
Legend: *CAGR=compounded annual growth rate; ED=excise duty; VAT=value-added tax; TTR=total tax revenue; var=variation (in percentage points); (..)=data unavailable.*
Notes: *(*) Simple (and not weighted) average values, thus not corresponding to the weighted average values used in Figure 3.21 above; (**) the CAGR of HR relates to the 2012-16 period.*

3.4 'Novel products' market trends and taxation

3.4.1 Electronic cigarettes

- **OVERVIEW**

'Electronic cigarettes' (or e-cigarettes) denotes a heterogeneous class of products[139] that TPD2 defines '*a product that can be used for consumption of nicotine-containing vapour in a mouth piece, or any component of that product, including a cartridge, a tank and the device without cartridge or tank. Electronic cigarettes can be disposable or refillable by means of a refill container and a tank, or rechargeable with single use cartridges'*. The TPD2 also defines 'refill container' as '*a receptacle that contains a nicotine-containing liquid, which can be used to refill an electronic cigarette'.*[140] In the framework of WHO FCTC, these products are referred to as Electronic Nicotine Delivery Systems (ENDS), or Electronic Non-Nicotine Delivery Systems (ENNDS) for products not containing nicotine. According to the WHO definition '*ENDS/ENNDS heat a solution (e-*

[139] This class may include products commercially known as e-cigars, e-hookah, vape pens, personal vaporisers, electronic pipes etc.
[140] TPD2, Art. 2(16).

liquid[141]) to create an aerosol which frequently contains flavourants, usually dissolved into Propylene Glycol or/and Glycerin. All ENDS contain nicotine.'[142] The aerosol produced by e-cigarettes and inhaled by the user is essentially a vapour, hence the widespread terminology of 'vaper' and 'vaping' to denote e-cigarettes users and consumption.

E-cigarettes consist in principle of two main components: (1) the ***hardware*** (i.e. the device); and (2) the ***consumable*** (i.e. the liquid that is vaporised). This difference is clear in the case of the so-called 'open systems', which can be recharged with e-liquids, or in the case of simple refill-cartridge systems, but it is not so clear-cut in the case of certain disposable products, as well as for 'cartomisers' and 'clearomisers' that combine both a consumable element (the cartridge containing the e-liquid) and a non-consumable element (mouthpiece, heating coil, wick etc.). E-liquids generally contain a solution of propylene glycol and vegetable glycerine (PG / VG) in different proportions, flavourings, water and nicotine in different concentration (from nil to maximum 20mg per ml of liquid). The majority of consumable products are 'ready-to-vape' (i.e. pre-mixed), however it is increasingly common among vapers to buy separately and home-mix nicotine-free liquids and nicotine 'shots', or 'bases' (neutral mix of PG / VG) and concentrated flavours – a practice known as 'do-it-yourself' or 'shake-and-vape'.

- **MARKET AND CONSUMPTION TRENDS**

Official data on the size of the e-cigarettes market and consumption levels are still unavailable.[143] However, rather accurate estimates have increasingly been collected through surveys of consumers (*Eurobarometer* and national surveys) and market intelligence providers (in particular the specialised platform *EcigIntelligence*). On this basis, we have updated here the estimates that were developed in the framework of the previous EA 2018.

The main indicator is the prevalence of consumption, i.e. the amount or share of the population who use e-cigarettes on a regular basis. We have estimated this indicator triangulating three sources: the *Eurobarometer* surveys and the estimates elaborated by *EcigIntelligence* and *Euromonitor.* Since the data published by these sources generally refer to different years (and not all MS are included, except in Eurobarometer), we have modelled our estimates interpolating the different data points available. The results are reported in Table 3.22 below. Additionally, we have used the Eurobarometer data on frequency of use (daily, weekly, monthly) to build a conversion coefficient to transform general prevalence into 'daily-equivalent' prevalence.[144]

The results show that the ***number of e-cigarettes regular consumers*** in the EU has doubled between 2013 to 2017, from ca. 6 to more than 12 million users. The majority of them use e-cigarettes daily. Converting non-daily into daily-equivalent users the total number of users seems close to 10 million. The highest prevalence is registered in UK and FR where it exceeds 4-5% of the population, while in other EU countries it typically amounts to 1-2%. At the EU level, the number of consumers has grown at a pace of 19% annually, between 2013 and 2017, although as discussed further below the actual

[141] In the USA, the FDA has adopted the term 'e-liquid' in its guidance document: '*liquid nicotine and nicotine -containing e-liquids (i.e., liquid nicotine combined with colourings, flavourings, and/or other ingredients) are generally referred to as e-liquids*'.
https://www.fda.gov/downloads/TobaccoProducts/Labeling/RulesRegulationsGuidance/UCM499352.pdf
[142] Conference of the Parties to the WHO Framework Convention on Tobacco Control, "WHO Report, Electronic Nicotine Delivery Systems and Electronic Non-Nicotine Delivery Systems (ENDS/ENNDS)", August 2016.
[143] The TPD2 envisages the collection by MS of information on sales volume, consumers preferences, modes of sales and other market information (Articles 20.7 and 20.8). However, at the time of the research this information was not available.
[144] Since the national-level data were insufficient to estimate an ad hoc conversion factor for each MS, an EU-average factor was used, equal to 1: 0.805.

trend has not been linear and some slow-down is apparent in most recent years. The growth has been particularly high in AT and EL, while it has nearly stalled in HU and PT.

Table 3.22 – Regular users of e-cigarettes in MS, linear-trend modelled estimates (2013-17, million users)

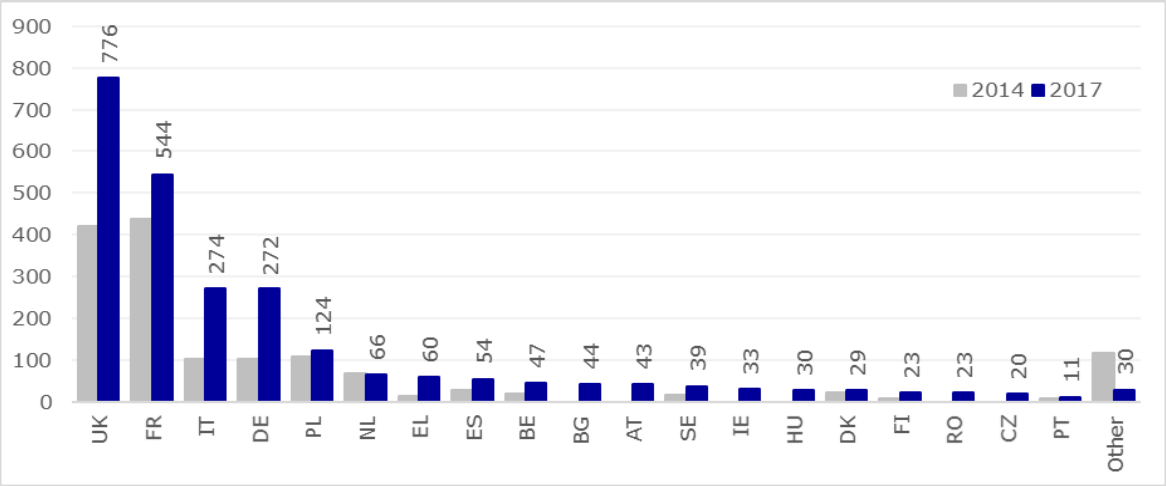
MS	2013	2014	2015	2016	2017	CAGR 2013-17	DVE 2017
AT	0.03	0.07	0.10	0.13	0.16	*48%*	0.13
BE	0.12	0.15	0.18	0.21	0.25	*21%*	0.20
BG	0.05	0.06	0.08	0.09	0.10	*21%*	0.08
CY	..	0.01	..	0.02	..	..	..
CZ	0.08	0.09	0.10	0.11	0.13	*13%*	0.10
DE	0.60	0.82	1.03	1.24	1.46	*25%*	1.17
DK	0.12	0.14	0.15	0.17	0.18	*10%*	0.15
EE	0.01	0.01	0.01	0.02	0.02	*31%*	0.01
EL	0.06	0.11	0.15	0.19	0.23	*38%*	0.19
ES	0.29	0.30	0.31	0.32	0.33	*3%*	0.27
FI	0.06	0.07	0.08	0.09	0.10	*13%*	0.08
FR	1.35	1.70	2.04	2.39	2.74	*19%*	2.20
HR	..	0.02	0.02	0.01	0.01	..	0.01
HU	0.11	0.11	0.11	0.11	0.11	*1%*	0.09
IE	0.08	0.10	0.13	0.16	0.18	*23%*	0.15
IT	0.51	0.66	0.82	0.97	1.12	*22%*	0.90
LT	0.01	0.01	0.02	0.02	0.02	*19%*	0.02
LU	..	0.01	..	0.01	..	..	..
LV	<0.01	0.01	0.01	0.01	0.01	*29%*	0.01
MT	..	<0.01	..	0.01	..	..	..
NL	0.15	0.20	0.25	0.30	0.35	*25%*	0.29
PL	0.69	0.87	1.04	1.22	1.40	*19%*	1.13
PT	0.06	0.06	0.07	0.07	0.07	*4%*	0.06
RO*	0.05	0.06	0.07	0.08		*16%*	..
SE	0.07	0.09	0.10	0.11	0.12	*14%*	0.10
SI	..	<0.01	0.01	0.01	..	..	..
SK*	0.03	0.04	0.04	0.04	..	*5%*	..
UK	1.55	1.94	2.34	2.74	3.14	*19%*	2.53
EU	**6.08**	**7.70**	**9.25**	**10.85**	**12.24**	***19%***	**9.85**

Source: *Author's modelled estimates based on Eurobarometer, Ecigintelligence and Euromonitor International estimates on regular users of e-cigarettes in MS.*
Legend: *CAGR=compounded annual growth rate; DVE='daily-vaping equivalent', i.e. conversion of total users in 'daily users' (applying a 1:0.805 factor, estimated on the basis of Eurobarometer data); (..)=data unavailable.*
Notes: *(*) the CAGR for RO and SK refers to the 2013-16 period.*

The ***value of the e-cigarettes market*** in the EU can be estimated at about EUR 2,540 million (2017). The largest national markets are, again, the UK (EUR 776 million) and FR (EUR 544 million). IT, DE and PL are also relatively large markets, worth between EUR 100 and 300 million, while the remaining EUR 500 million is divided between 23 countries. The absence of official data makes precise estimates difficult, but overall the market value has seemingly increased in all the EU countries monitored by *EcigIntelligence* (see Figure 3.22), at an average growth rate of 19.5% annually (broadly in line with the growth in the consumers' base). There are no reliable data on the composition of the market, and the share of the consumable component may vary from 30% to 75% of the total (some 55% on average).[145]

[145] This proportion varies greatly across countries. For instance, in Germany various economic operators concur device sales represent the majority of the market. This seems to reflect the fact that German market is relatively younger as compared to e.g. the UK, France and Italy. More generally, this proportion may be influenced by a number of factors and cannot be estimated precisely. In particular: (i) the preference of consumers for premium or cheap devices (in the case of devices, price range from €10 to over €100) and the rapidity of obsolescence; (ii) the expenditure on e-liquids, as determined by both price-related choices and the diffusion of high-power devices, which consume liquids more rapidly; (iii) the incidence of 'do-it-yourself', both for devices (less common) and e-liquids. It should be noted that these three variables are somehow connected, since a higher expenditure on large devices may trigger a higher consumption of liquid, which in

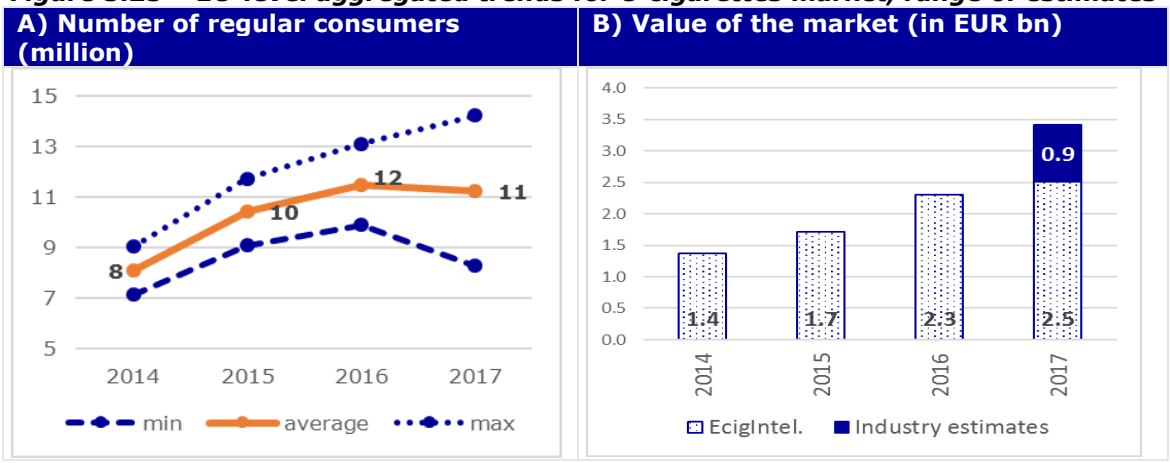
Figure 3.22 – Estimated market value of e-cigarettes in MS (EUR million)



***Source**: ECigIntelligence database (March, 2018). The 'other' MS component has been estimated pro quota based on the share of EU consumers based in these countries on the EU total.*
***Note**: Markets size estimates are converted by using the European Central Bank official exchange rate and expressed in million EUR. The 'other' figure for 2014 is greater than for 2017 since it contains a higher number of MS, which were not monitored by ECigIntelligence at that time (e.g. BG, IE, CZ and RO).*

In Table 3.22 we have tried to reconcile the different sources of estimates on prevalence assuming a linear growth. This allows to appreciate the mid-term evolution in the EU and individual MS but does not provide a realistic picture of the actual shape of the growth curve. To this end, we have gathered the various point estimates available for each year (including industry's own estimates where available) and elaborated data 'ranges'. As shown in Figure 3.23 below, depending on the source a quite different picture emerges, with a market steadily growing in the best-case scenario or a substantial slow-down and possible stagnation in the worst-case scenario. The trend varies from country to country but it is interesting to note that also in the most developed European market – i.e. the UK – a slow-down was reported by independent sources in 2016-2017.[146]

Figure 3.23 – EU-level aggregated trends for e-cigarettes market, range of estimates



***Source**: Author's aggregation of various data sources including ECigIntelligence, Eurobarometer, and industry own estimates.*

turn may encourage vapers to save money through 'do-it-yourself' mixing. A further complexity is that the distinction between device and consumable is blurred in the case of closed system and of 'start kits' – which includes both a hardware and a refill component.

[146] Source: ASH, factsheets. http://ash.org.uk/category/information-and-resources/fact-sheets/
According to the same source the projection for 2018 indicates however a recovery of growth from 4% in 2017 to some 10%.

- **TAX AND PRICE LEVEL IN MEMBER STATES**

The main commercial uptake of e-cigarettes in the EU started after the adoption of Directive 2011/64, which is therefore silent on their tax profile. However, since 2013, more and more countries have introduced ***ad hoc domestic consumption taxes*** on these products. The precursors were IT (2013) and PT (2014), later joined by RO, SI and LV. As of today, some thirteen MS have adopted an *ad hoc* e-cigarettes tax (see Figure 3.24), the latest being SE who adopted a tax proposal in February 2018.[147] All these countries have opted for a specific tax per volume of e-liquid, but while some MS apply the tax only to nicotine-containing liquids (e.g. RO, PT, SE, SI and HU) others tax all liquids suitable of being consumed in an e-cigarette device, irrespective of nicotine contents. The only exception is Latvia, whose tax regime includes both a specific tax per volume of liquid and a tax component proportional to nicotine concentration. Also the amount of tax levied varies greatly: at end of 2017 it ranged between nearly EUR 0.4 per ml of e-liquid in Italy to nil in Croatia, with an average of EUR 0.19 per ml.

The Budget Law approved at the end of December 2018 in Italy envisages a major cut (80%-90%) in the rate applied to e-cigarettes. The new rates applicable since 1st January 2019 are of EUR 0.08/ ml for nicotine-containing products, and EUR 0.04 for nicotine-free e-liquids and bases. The tax rate of e-cigarettes remains connected to the excise levied on cigarettes but the proportion is reduced from 50% to 5%. In this sense, Italy, which used to have the highest rate, is now adopting one of the lowest tax regimes in the EU. This is the second case of a 'forerunner' e-cigarettes-taxing MS radically slashing taxing on e-cigarettes, after Portugal, which cut its rate by half for EUR 0.6 to EUR 0.3 / ml in 2017. This is not sufficient to draw firm conclusions, nonetheless, it is rather telling that the two countries that five years ago paved the way to *ad hoc* domestic taxation of e-cigarettes have then somehow backtracked.

The Table 3.23 further below provides an overview of ***price levels*** in the majority of EU countries as well as in some non-EU countries for benchmarking purposes. For an easier comparison of price levels, two main standard products are considered: (1) the average price of a standard 10ml refill container[148] and (2) the average price of a closed-system starter kit (which typically includes both the device and one or more refill containers). The price reported are elaborated based on the *EcigIntelligence* monitoring database, which are collected from a sample of the most popular online outlets in the countries concerned. The main outcomes are as follows:

- In the period considered (Nov 17 – Feb 18) the average price of e-liquids in the EU was ca. EUR 0.51 / ml, while the average price of a closed-system kit was ca. EUR 18.9. Overall, the average price levels in the EU appear lower than, for instance, in Norway, Japan and Australia but higher than in Switzerland, Ukraine, Russia and United States (except closed-systems).
- The average retail price of e-liquids ranges from as low as EUR 0.24 in PL to 0.66 in IT. The price 'gap' between countries is smaller than for cigarettes, in fact there is a 2.8 ratio between the highest and the lowest price, which reduces to 1.4 if the 'extremes' of the distribution are not considered (the highest and the lowest 10% percentiles). The variability is even smaller in the case of closed-system kits, with average prices ranging from EUR 12.3 in BG to EUR 28.0 in the UK (2.3 ratio). The

[147] See (in Swedish): https://www.regeringen.se/48fc31/contentassets/49d633a078db414e806a37acf2970455/beskattning-av-elektroniska-cigaretter-och-vissa-andra-nikotinhaltiga-produkter.pdf

[148] EcigIntelligence collects and aggregates price data through the website of the top-ranking (*Alexa* ranking) websites of e-cigarette retailers in the countries considered. Since the EcigIntelligence data regard the 'cheapest' products per outlet, and these sometimes include 'do-it-yourself' liquids, the average estimates seem below the typical price of 'ready-to-vape' products so a midway point between the average 'cheapest' price and the maximum 'cheapest' price in the EcigIntelligence distribution has been retained as proxy, so as to reduce the bias due to outliers.

price levels of closed-system kits are not necessarily proportional to the price of e-liquids. The price ratio between closed-system kits and e-liquid 10 ml refills ranges from 2.6 in BE to 5.1 in HU. Leaving aside measurement issues, this variance can be explained by the difference of products available on national markets.

- If adjusted by purchasing power parities (PPP), the price variability between MS increases, ranging from 'only' EUR 0.38 in DK to EUR 1.0 in BG. Interestingly, when measured in PPP terms, the impact of ad hoc national taxes becomes apparent. In fact, the average PPP price in taxing-MS is EUR 0.67/ml, while in non-taxing MS (including countries where the tax was zero at the end of 2017) it is EUR 0.53/ml. The same does not hold true for the price of closed system kits, but it has to be considered that the taxable component of such kits – i.e. the consumable part – represents only a fraction of the selling price, so it is not surprising that the impact of taxes is not immediately tangible for these products.
- There appears to be no significant correlation between the price of e-cigarettes and the price of conventional cigarettes in MS (measured in PPP terms). E-cigarettes appear comparatively more expensive in EL, BG, IT and CZ, while significantly less expensive in IE and the UK.[149] Again, this can be partly the consequences of national taxes, since the ratio between the price indices of e-cigarettes and conventional cigarettes is some 21% points higher in taxing countries than in non-taxing ones. (assuming the EU average = 100)
- According to EcigIntelligence data the price levels might have increased by some 5% on average in the 2015-2017 period, but given the heterogeneity of products monitor this figure must be taken with great caution.

Figure 3.24 - Tax regulation of e-cigarettes in the EU

	No consumption tax
	Consumption tax
CY	€0.12/ml on all e-liquids
EE	€0.20 on all e-liquids
EL	€0.10/ml on all e-liquids
FI	€0.30/ml on all e-liquids
HR	HRK 0.00/ml
HU	HUF 65/ml (ca. €0.18/ml) on nicotine liquids
IT**	€0.3976/ml on all e-liquids.
LV	€0.01/ml of e-liquid and €0.005/mg of nicotine
PL*	PLN 0.5/ml (ca. €0.12/ml) on all e-liquids
PT	€0.30/ml on nicotine liquid
RO	RON 0.5/ml (ca. €0.11/ml) on nicotine liquids
SE*	SEK 2/ml (ca. € 0.20/ml) on nicotine liquids
SI	€0.18/ml on nicotine liquids

Source: *EA 2018, updated through ECigIntelligence Regulatory Tracker, 2018.*
Note: *(*) In SE the tax is applicable since July 2018, in PL since January 2019. (**) In 2019, the rate in Italy will fall to €0.08/ml for nicotine-containing products and €0.04 for nicotine-free products.*

[149] The price indices used for comparison are calculated based on EU average price (in PPP) =100 (for the sample of 19 MS analysed here). The ratio between the two indices is high when, in a given country, the price of e-cigarettes is comparatively higher than the price of cigarettes and *vice versa*.

Table 3.23 – Average price of e-cigarettes in Member States and third countries (estimates at end of 2017, in EUR)

	E-liquids (EUR/ml)	In PPP	Closed systems kit (EUR)	In PPP
AT	0.62	0.55	22.6	20.1
BE	0.62	0.55	15.8	14.1
BG	0.44	1.00	12.3	27.9
CZ	0.48	0.75	16.1	25.1
DE	0.50	0.48	23.8	22.8
DK	0.54	0.38	14.6	10.3
EL*	0.60	0.73	18.8	22.9
ES	0.44	0.47	21.6	23.2
FI*	0.54	0.43	21.0	17.1
FR	0.58	0.55	19.0	17.8
HU*	0.43	0.74	22.0	37.7
IE	0.51	0.40	18.0	14.1
IT*	0.66	0.65	18.0	17.6
NL	0.50	0.43	19.1	16.6
PL**	0.24	0.45	..	..
PT*	0.51	0.61	16.1	19.4
RO*	0.40	0.84	14.4	29.7
SE**	0.55	0.41	18.6	13.8
UK	0.57	0.48	28.0	23.8
EU average (based on 19 MS)	**0.51**		**18.9**	
USA	0.39		20.3	
Australia	0.57		34.9	
Japan	0.71		19.2	
Norway	0.82		27.7	
Russia	0.16		24.5	
Switzerland	0.38		17.4	
Ukraine	0.12		8.6	

***Source**: Author's elaboration based on ECigIntelligence price database. PPP index drawn from Eurostat.*
***Legend:** (*) MS with an ad hoc tax on e-cigarettes; (**) MS with an ad hoc tax but not yet in place at end of 2017. PPP=purchasing power parities; (..)=unavailable data.*
***Notes**: Prices levels are calculated on the average monthly prices registered between November 2017 and February 2018, so as to correct from apparent distortions in individual monthly reports. For closed system kits the figure is the mean value of the lowest price registered on the most popular online outlets in the country concerned. In the case of e-liquids, such EcigIntelligence indicator may be biased by 'do-it-yourself' products. To correct this issue, the table reports the average value between the median and the maximum 'lowest price' reported by EcigIntelligence. Prices are converted in EUR using the European Central Bank official exchange rate (2017 average).*

➢ INDUSTRY AND TRADE FLOWS

As compared to manufactured tobacco, the e-cigarettes industry is characterised by a low concentration - i.e. a significant share of the market is divided among many SMEs[150] - and high geographical partitioning - i.e. most operators are active in one country only. Precise data on the number of existing players are not available but the estimates provided by various stakeholders suggested there are some 1,000 – 2,000 distributors and producers in the EU, mainly based in UK, FR, IT, PL and DE.[151] This estimate does not include franchises and point-of-sales, whose number is countless.

E-cigarettes devices and components are mostly produced in China, although some major brands are designed and engineered, and sometimes assembled, in the EU (Germany, UK etc.), whereas e-liquids are to a significant extent manufactured in the EU (e.g. FR, PL, UK, IT, CZ etc.) with ingredients sourced from chemical companies (e.g.

[150] According to *Euromonitor International* (cited in EA 2018), in the two main EU markets, i.e. UK and France, the top 5 brands account for less than 30% of sales.
[151] Estimates collected and reported in the framework of the EA 2018 study.

nicotine) or food additives and fragrances industry (for flavours). According to Eurostat data, the value of import of e-cigarettes refills in the 1st quarter of 2018 amounted to EUR 4.3 million, against an intra-EU trade value for the same products of EUR 10.5 (see Table 3.24). Some two-thirds of import relates to nicotine-free products, which are likely transformed in finished products within the EU. The aggregated EU import of pure nicotine[152] in the same period amounted to EUR 5.8 million. Imported e-liquids come primarily from the US (43% of import) or China (49%). Other minor countries of origin include Switzerland, Canada, Malaysia and the Philippines. Nicotine is instead primarily sourced from Switzerland (42%) or India (52%). The export of e-cigarettes liquids from the EU is limited, and in the 1st quarter of 2018 amounted to less than EUR 0.8 million.

Table 3.24 – Trade of e-cigarettes refills and nicotine from/to the EU (1st quarter of 2018)

	Import (in € million)	Export (in € million)	Intra-EU (in €)
Refills with nicotine	1.60	0.25	7.33
Refills without nicotine	2.67	0.52	3.21
Total Refills	**4.27**	**0.76**	**10.54**
Nicotine	**5.82**	**0.47**	**2.29**

***Source**: Eurostat.*
***Note**: The three CN categories reviewed are 3824 9956 (for refills with nicotine), 3824 9957 (for refills without nicotine) and 2939 7910 (for nicotine). The refill categories were introduced last year so data are available only since January 2018.*

3.4.2 Heated tobacco products

- **OVERVIEW**

In the past few years, most big tobacco companies have increasingly invested in alternative nicotine delivery systems that heat but do not burn tobacco and are therefore referred to as Heat-not-Burn or simply Heated Tobacco Products (HTP). There is no *ad hoc* definition for HTP in the TPD2, but they are considered falling under the general category of 'novel tobacco products', which comprises all tobacco products placed on the market after 19 May 2014 that are not covered by other tobacco categories[153]. Unlike e-cigarettes, HTP do contain tobacco, although typically of reconstituted type. Like e-cigarettes, HTP consist of two components: a heating device and an electronically-heated tobacco element (a 'stick' or a 'pod'). When heated, the tobacco element generates an aerosol that the users inhale. Although different in many respects, HTP and e-cigarettes have in common the absence of self-sustained combustion processes, and therefore are often defined in Member States' legislation as 'non-combustible' products, although it should be reminded that there is no international consensus in considering these products as smokeless and on the exact nature of the emissions of these products.[154]

[152] The commercial category at stake is 'Nicotine and its salts, ethers, esters and other derivatives thereof'. Part of this value may not refer to the e-cigarettes industry.
[153] It can be worth mentioning that it falls under MS competence to categorise these products as either 'smoke' or 'smokeless' for the purpose of determining which obligations should apply to these products in terms of – for instance - labelling and packaging.
[154] To this aim the FCTC COP8 has charged WHO to examine the chemical and physical processes that novel products undergo, including the characterization of emissions. Based on this, the Convention Secretariat shall examine the challenges that these products are posing for the comprehensive application of the protocol, with a view to (1) consider possible revisions of articles and guidelines definitions/terminology, where needed, and (2) advise, as appropriate, on the adequate regulatory classification of novel products such as heated tobacco. This has become an urgent matter since some researchers have recently challenged the fact that heated tobacco products could be considered as smokeless. Some studies discussed *inter alia* at conference of the European Network for Smoking Prevention (ENSP) held in Madrid in June 2018, claim that heated tobacco would undergo a controlled incomplete combustion process at low temperatures that would give rise to similar end products as a cigarette (and be indistinguishable from it), including tar as a residue, although in lower amounts. They would therefore produce a 'smoke' – not conceptually far from that of a cigarette although much less toxic because the temperature is lower and strictly controlled. See: Auer R, Concha-Lozano N,

As opposed to e-cigarettes, HTP products are available in a much smaller variety. At the moment only one product is widely commercialised in the EU, but other competing products with similar concepts are being launched or pilot-tested in both some EU countries or outside the EU.[155] Additionally, other new generation platforms are being developed, so it is very likely that the HTP sector will continue evolving rapidly in the near future.[156]

- **TAX POLICY FRAMEWORK**

HTP is also not explicitly mentioned in Directive 2011/64 since it appeared on the market after its entry into force. However, being a tobacco product, its actual status is unclear, and ***MS have developed different views*** on whether it should be considered an excisable manufactured tobacco product or not and, in case, which excise category can be applied. The various approaches have been influenced to various extent by the partly different (and evolving) characteristics of products, which may consist of small tobacco 'pods' or short tobacco rolls, and have seen overtime the addition of an aluminium foil wrapping the tobacco rod, to prevent its smokeability. Based on that some MS regulators have opted to classify HTP in the 'smoking tobacco' category or (initially) as manufactured cigarettes, but several other MS have been of the opinion that the legal framework was not in tune with these products and should be revised.

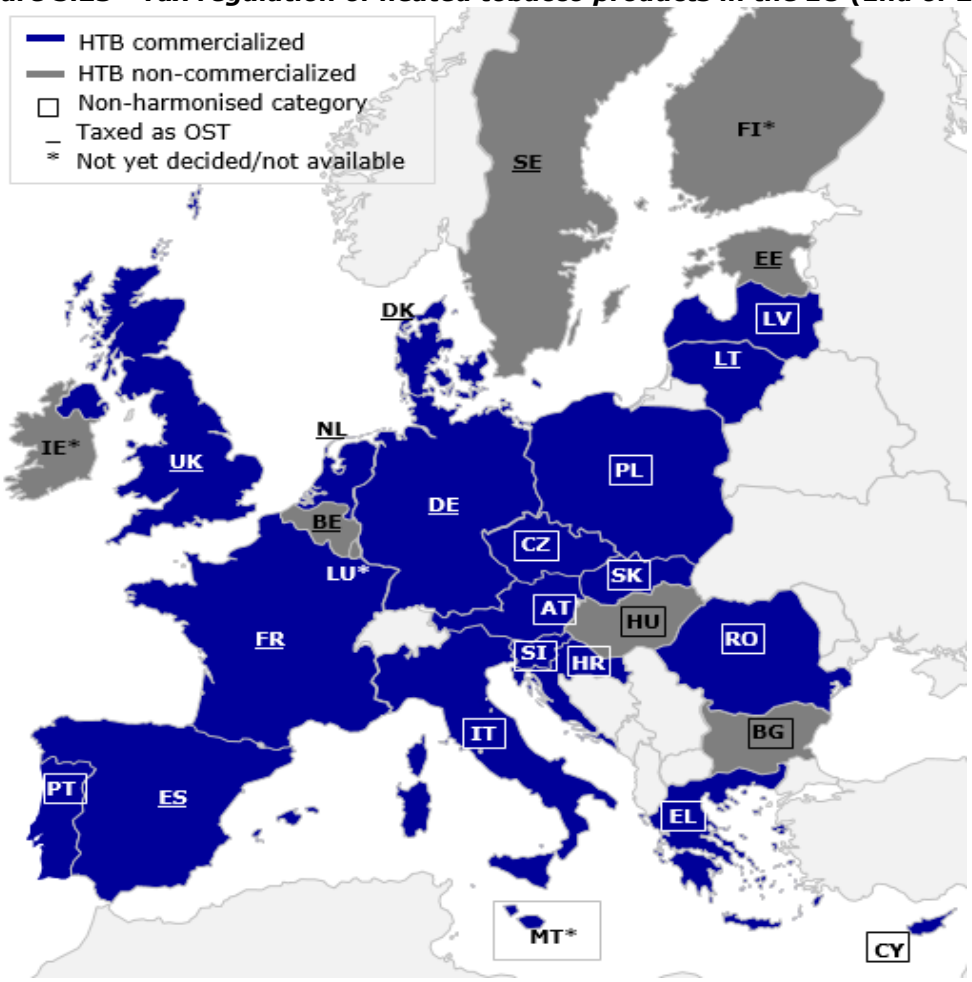
In less than two years, HTP has been introduced in 17 MS, so more and more tax authorities have been called to decide which regime to apply. As illustrated in Figure 3.25, the level of fragmentation is high. For instance, Italy has adopted a product-specific approach by establishing an equivalence of time consumption to conventional cigarettes under the same puffing conditions and applying a 50% reduction (that will significantly reduce in the course of 2019); in Portugal there is a mixed approach with an *ad valorem* component, a specific component and a minimum excise; Hungary has a fully specific non harmonised tax per items (and not per weight); six MS (including DE, FR and UK) consider it a harmonised product and apply the tax regime of other smoking tobacco (per weight in Kg), with the UK including the entire stick (with filter etc.) in the tax base; Slovenia applies the harmonised regime of FCT (per weight in Kg).

Jacot-Sadowski I, Cornuz J, Berthet *A. Heat-Not-Burn Tobacco Cigarettes - Smoke by Any Other Name*. JAMA Intern Med. 2017;177(7):1050–1052. The TPD2 definition of smokeless products is instead based on a concept of combustion as a self-sustainable process requiring tobacco as an endogenous combustible and therefore consider heated tobacco products as smokeless for regulatory purposes.

[155] Reference is made here to the HTP products of Philip Morris International (available in 17 EU countries), British American Tobacco (pilot-launched in a few cities in RO and IT, at the time of writing) and Japan Tobacco International (available oustide of the EU, including Switzerland).

[156] See, for instance: https://www.pmiscience.com/our-products/platform2

Figure 3.25 - Tax regulation of heated tobacco products in the EU (End of 2017)



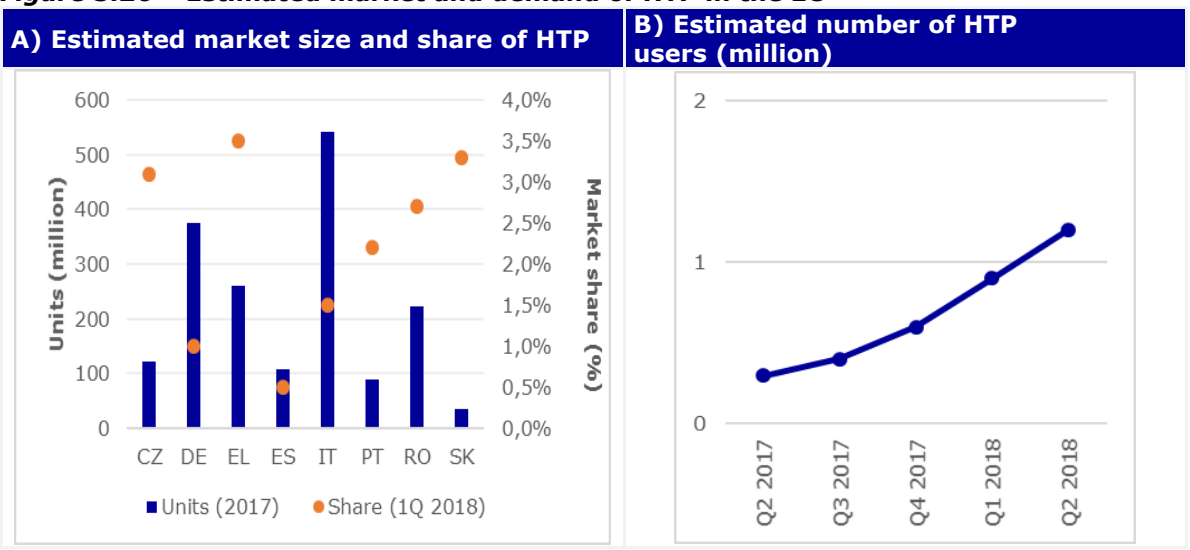
Non-harmonised category		Taxed as OST	
BG	BGN 152/Kg (ca. € 77.24) *planned*	**DK**	DKK 738.5/Kg (ca.€ 99.18)
CY	€ 150/kg of the net weight of the tobacco mixture	**EE**	€ 71.15/Kg
EL	€ 156.7/Kg	**LT**	€ 54.16/Kg
HR	HRK 600/Kg (ca. €80.7)	**NL**	€ 99.25/Kg
HU	HUF 10,000/ 1,000 sticks (ca. €32.46)	**SE**	SEK 1,852/Kg (ca.€ 193.06)
IT	Depending on SKU: € 63.25 to € 63.36/ 1,000 sticks	**UK**	GBP 114.06/Kg (ca.€ 130.63)
LV	€ 62/Kg	**DE**	*Ad valorem* 13.13% of RSP and *specific* € 15.66/kg. Minimum Excise: €22/kg
SK	€ 73.9/Kg	**ES**	Ad valorem 28.4% of RSP. Minimum Excise € 22/Kg
SI	€ 88/kg	**FR**	*Ad valorem* 45% of RSP and *specific* € 17/kg. Minimum Excise: € 70/kg
RO	RON 384/Kg (ca. € 86.5/93.2)	**BE**	*Ad valorem 31*.5% of RSP and *specific* € 32.3/kg. Minimum Excise: €66.1/kg
PT	*Ad valorem* 16% of RSP and *specific* € 80/kg. Minimum Excise: €169/kg		
CZ	CZK 0/Kg		
PL	PLN 0/Kg		

Source: *EA 2018 updated with information sources from ECigIntelligence, and consultations of operators (PMI, BAT and JTI) and Member States authorities.*
Note*: the situation refers to end 2017 (except for AT, for which recent development are displayed). A positive rate will be applied in PL and CZ since 2019. Also LV has scheduled increased foreseen until 2020 (€ 75/Kg). Conversely, in IT the rate will drop in the course of 2019 to some EUR 35.5 / 1000 sticks (for the currently most popular product). In the UK the tax base is the weight of the entire stick, including the filter.*

➢ MARKET TRENDS

The market for HTP is still a niche and is not monitored systematically. However, considering that, at the time of research, the near totality of the HTP market was represented by one product[157] some accurate estimates on the size of the HTP market in the EU can be elaborated based on this company's corporate reports.[158] The marked data published, regarding a sample of EU countries, showed a penetration rate ranging from 0.5% (ES) to 3.5% (in EL) of the cigarettes market in the first quarter of 2018 (Figure 3.26.A). In 2017, the volume of consumable sales (in pieces) can be estimated between 35 million units (in SK) and 540 million units (in IT), totalling some 1.9 billion units and corresponding to an estimated value of EUR 432 million in the EU (inclusive of estimated sales in non-surveyed countries). This corresponds to an estimated 1.2 million estimated regular users (Figure 3.26.B).

Figure 3.26 – Estimated market and demand of HTP in the EU



***Source**: Author's elaboration and estimates based on Phillip Morris International reports to investors.*
***Note**: Market volumes are calculated based on PMI share estimates (%) applied to the EDT market volumes.*

➢ PRICE AND TAX LEVELS

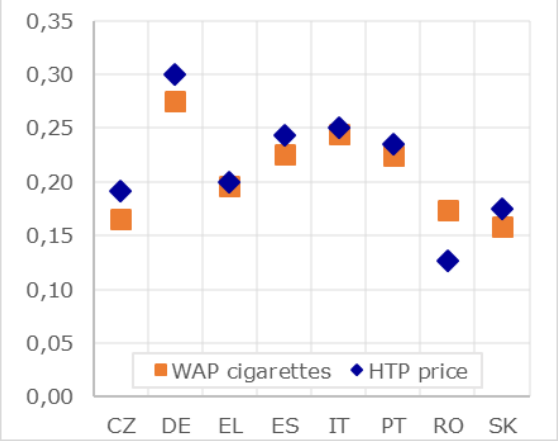
At the country level, the price of HTP is generally slightly higher than the cigarettes WAP. As intuitively shown in Figure 3.27.A, the correlation in the price level between these two categories of products seems high. When converted in purchasing power parities, the prices of HTP across MS show little difference, and are generally comprised between € 0.24 and € 0.28 per unit[159], in the sample of countries considered. The tax levied on HTP ranges from nil (in CZ) to nearly EUR 75 per 1000 units (in EL). The average (estimated) tax incidence in the sample amount to some 19%. The retail selling price appears poorly correlated with the tax level applied.

Based on these estimates, the hypothetical tax receipts collected from HTP in 2017 could amount to some EUR 83.5 million, that is some 4.8 €/cent per unit.[160]

[157] Reference is made here to the Philip Morris International's smoke-free products. See: https://www.pmi.com/smoke-free-products
[158] For the official quarterly reports, see the PMI's investor relations webpage: https://www.pmi.com/investor-relations/reports-filings
[159] Still, there are reported cases of illegal cross-border selling online of HTP products between EU countries. http://www.gazzettadellemilia.it/salute-e-benessere/item/17966-contrabbando-2-0-di-tabacco-per-le-iqos-su-ebay.html
[160] For comparison, the average excise duty receipt on cigarettes in the EU is 15.4 €/cent.

Figure 3.27 – Price and tax levels of HTP in selected markets (2017)

A) Estimated unit price level of HTP and cigarettes (WAP) in selected countries (EUR, 2017)



B) Estimated tax level and hypothetical receipts for HTP in selected countries (2017)

MS	Tax level (€/000)	Tax / Price (%)	Estimated receipts (€ million)
CZ	0.0	0%	0.0
DE	42.4	15%	15.9
EL	48.6	20%	12.6
ES	74.8	28%	8.0
IT	63.3	26%	34.2
PT	69.0	25%	6.2
RO	26.4	11%	5.9
SK	22.9	9%	0.8

***Source**: Author's estimates based on EDT (WAP, excise duty levels) and own search on national outlets and information sources (HTP price data).*
***Note**: Tax levels are calculated based on the applicable regime (see Figure 3.25). For conversion purposes, an average weight of 0.31g per unit is assumed. Tax receipts are estimated based on tax levels and the estimated market size.*

4. EVALUATION RESULTS

4.1 Overview

Directive 2011/64 is part of a broader EU policy framework that includes the general excise duty legislation and the customs union rules and practices, as well as thematic policies on tobacco such as tobacco control policies and the policies against illicit trade and tobacco tax fraud. Additionally, the EU is party to the WHO Framework Convention on Tobacco Control (FCTC) and has therefore committed to support its objectives and principles. The evaluation of the ***coherence*** criterion (Section 4.2) reviews if and how the Directive 2011/64 objectives and measures are consistently aligned with these policies and any possible mismatch or gap thereof.

The ***relevance*** criterion (Section 4.3) examines whether the objectives and the measures laid down in the Directive are still 'fit for purpose', i.e. whether they still correspond to the needs of Member States and stakeholders and if the tools and provisions envisaged are still suitable to achieve current and future goals.[161] This is examined regardless of how provisions have been implemented so far and the results achieved, which are the subject of the next 'effectiveness' evaluation criterion.

The core of the retrospective evaluation is the assessment of ***effectiveness*** (Section 4.4), which concerns the degree of achievement of the stated objectives of the Directive. Where available, the scenarios developed in the impact assessment underlying the Directive (IA 2008) have been used as benchmarks for the evaluative judgments. More often, clear and measurable targets were not explicit at the outset and we had to 'reconstruct' them from various sources. Three macro dimensions have been investigated in this Section: (1) internal market functioning and competition; (2) 'unrecorded' tobacco consumption; and (3) public health effects (with a focus on smoking prevalence). It is also worth mentioning that some policy objectives are more closely linked to EU fiscal policies than others. For instance, 'convergence' across MS, price differential between products, accessibility price etc. are quite straightforwardly connected with tax regimes, whereas smoking prevalence, illicit trade etc. can be influenced by a number of other intervening factors.

In the following Section 4.5 – i.e. ***EU added value*** - we try to determine the extent to which the trends observed in the taxation, price level and demand of cigarettes and FCT in the EU can be indeed attributed to the effects of the Directive, 'triangulating' to this end quantitative estimates based on a counterfactual scenario analysis and qualitative feedbacks collected from tax authorities and public health authorities of the MS. Ultimately, we analyse whether against these results an EU intervention in this area is still justified.

Finally, Section 4.6 examine the ***efficiency*** of the Directive, with a clear focus on 'operational efficiency'. In this sense, we have reviewed the areas for possible simplification of existing provisions and for reduction of unnecessary regulatory costs and burden (including administrative, compliance and enforcement costs) for both MS administrations and economic operators. Then, we have elaborated a high-level indicator of how the excise amounts collected have possibly transformed into benefits, to allow comparison with the scenarios that are developed in the 'forward-looking' component of the Study.

[161] The analysis of relevance focuses on the tobacco excise legislation in general, i.e. without differentiating between legacy provisions and provisions introduced in 2010-2011. In practice, the relevance 'test' regards the current situation and whether e.g. minimum rates and structures provisions can still drive the harmonisation of MS tax regimes or have become obsolete and there is consequently a need to adjust them to the current priorities and emerging issues.

4.2 Coherence

4.2.1 General coherence with market functioning and trade

- **OVERALL EU EXCISE LEGISLATION**

As discussed in Section 1.3, the EU excise legislation consists of both 'horizontal' legislation - i.e. Directive 2008/118 and its implementing acts which established the general functioning rules common to all excisable products - as well as 'vertical' legislation – covering the three categories of excisable products harmonised at EU level, including manufactured tobacco. At a general level, the legislative framework is highly integrated, so there is coherence 'by design' between Directive 2011/64 and the horizontal legislation. At a more operational level, it is relevant to examine whether the measures laid down in the Directive are conducive to the proper functioning of the overall EU excise system. This calls into question primarily the definition of tax categories and whether they support a smooth and coherent classification of manufactured tobacco products and an effective administration and monitoring of movements under the Excise Movements and Control System (EMCS) – the computerised system for tracing the intra-EU movement of excise goods under duty suspension (see Figure 1.5, in Section 1.3).

The results of the analysis indicate that the Directive generally scores well in this area. This is confirmed also by the majority of tax authorities, who expressed satisfaction with the effects of harmonised definitions on the consistency of classification practices across Member States. However, there is room for improvement with a few specific definitions where, classification uncertainties and disparities of interpretations can have negative repercussions on the smooth functioning of EMCS and the EU excise system on the whole. In particular:

- There are uncertainties with the interpretation of the definition of '***smoking tobacco***' laid down in Art 5.1 of the Directive. The issue was raised in the previous evaluation (Ramboll 2014), which concluded: "*The current definition of Art 5.1(a) and specifically, the wording of —without further industrial processing, appears not to be appropriate in light of giving sufficient legal clarity for the inclusion of a number of products which arguably can be smoked as smoking tobacco. This includes products such as raw tobacco, partially processed tobacco, dried leaves and other types of tobacco which are reported to being sold directly to consumers*."[162] The issue has been examined under EA 2018, which on the one hand confirmed Member States' difficulties with the subjective criteria of the definition of smoking tobacco, and on the other hand showed the limited added-value and justification of solving the matter by bringing raw tobacco in the scope of the Directive for purely monitoring purposes.[163] The disparity of interpretations has become even greater in recent months following the CJEU ruling C-638/15 on the so-called *Eko-Tabak* case (see Table 4.1 further below) and the consequent adoption of stricter classification criteria for processed tobacco in a few Member States. This is reportedly causing concrete hindrances to the cross-border movement of processed tobacco - classified as raw tobacco and therefore outside the EMCS system in the country of dispatch but considered as smoking tobacco, hence subject to excise and the EMCS in the country of destination – as well as administrative burden for the authorities involved and concerns among the 'leaf tobacco' industry. The majority of tax authorities consulted currently consider this 'a major' or 'a moderate' problem. At the time of this Report, the matter has recently been the subject of meetings between the Commission, Member States and stakeholders (via the Excise Contact Group).

[162] Source: Ramboll, 2014.
[163] Source: EA 2018. This argument was endorsed by the Commission in its 2018 Report (COM(2018) 17 final).

- Another issue detected under Ramboll 2014 and investigated under EA 2018 regards the excise ***definition of cigarillos*** and the disparity with the customs definition. The issue is described in details in the following section on the coherence with customs legislation, but it is useful to highlight here that the matter affects the overall coherence of the excise system due to both its legal implications – there is a pending case before the CJEU on this matter – and its practical repercussion on the functioning of the EMCS – since certain products would require to be classified and moved as cigarettes for tariff purposes but as cigarillos for excise purposes. Half of tax authorities who took part in the consultation consider this disparity as problematic.
- A similar issue regards ***novel products***. As discussed in the previous chapter, the tax treatment of e-cigarettes and HTP varies across Member States and there is no uniform view about their excisability status. So, there is substantial lack of coherence across the EU in this area. This is particularly the case with HTP, since some Member States consider it implicitly covered by the Directive and therefore subject to EMCS and the other 'horizontal' legislation requirements, while others classify it as a non-harmonised product and therefore falling outside the scope of the EU legislation (and EMCS). With e-cigarettes the issue is quite different since there is consensus on the fact that they are not currently excise good. In this sense, there is not an issue of coherence with the general excise legislation, but rather a question on whether the lack of coherence in Member States approaches would justify an EU-level harmonisation. The matter is therefore examined in greater detail in Section 4.2 on 'relevance'.

➢ COHERENCE WITH CUSTOMS CLASSIFICATION

There is an imperfect correspondence between the excise categories definition laid down in the Directive and the Combined Nomenclature (CN) classification of tobacco products used for 'tarification' and other customs classification purposes (see Figure 1.6 in Section 1.3). This mismatch is not *per se* a problem since the two classifications respond to different needs and objectives, and there is overall limited evidence of concrete issues connected it.[164]

The only coherence issue of some importance in this area regards, as discussed, the ***definition and classification of cigarillos***. The excise definition of these products has changed many times over the years. The definition currently in force was adopted in 2010 and, after the phasing out of the derogations extended to Hungary and Germany at the end of 2014, is now applied in all MS. However, the definition is not entirely coherent with the CN definition, in particular:

- the reference to 'normal consumer expectations' in the excise product definition is not present in the CN classification, where there is instead a reference to the fact these product 'can be smoked'. In both cases, these formulations seemingly aim at excluding from this category products like the so called 'party cigars' i.e. cigar-like sticks filled with fine-cut tobacco and wrapped in a roll of tobacco, which could not be smoked 'as is'[165];
- the CN definition requires there is no 'further layer partially covering the outer wrapper' (which has to cover the product in full, including, where appropriate, the filter). This is an element characterising so-called 'borderline' cigarillos and making them more similar in appearance to cigarettes. This distinction has an implication for classification certainty, since it derives that certain products with a further paper

[164] This was confirmed also by the results of the public consultation carried out in the framework of the EA 2018 study. The EA 2018 conclusions stressed that the alignment of definitions should be considered case-by-case and that fully cross-referenced definitions (as in the case of the alcohol legislation) were not needed or desirable.
[165] See also: Ramboll 2014, p.227.

layer covering the filter could be classified as cigarillos for excise purposes (T300) but as cigarettes for customs purposes (2402 20).[166]

The second point has both administrative and legal implications. Firstly, it should be noted that the electronic Administrative Document (e-AD) does not permit entering incongruent codes - i.e. cigarettes for CN purposes and cigarillos for excise purposes. Reportedly, this is commonly overcome by special agreements between operators and the authorities concerned but, in the past, there have been cases of shipments of cigarillos from outside the EU that were stopped by national customs due to these classification issues. As regards legal aspects, in November 2017 a request for preliminary ruling on this matter has been submitted to the CJEU by the Lithuanian authorities (Case C-638/17 – see also Table 4.1 below). In particular, the appellant requested (i) whether the definition of 'cigars and cigarillos' in the Directive covers or not cases where part of the wrapper of natural or reconstituted tobacco is additionally covered by another outer (paper) layer, and (ii) if it is relevant that the use of paper as an additional layer in the outer wrapper of the tobacco product (where the filter is) makes it visually similar to a cigarette.[167] The matter is substantive, since the application of cigarillos or cigarettes tax rates makes a huge difference in terms of final price and competitiveness. The CJEU ruling was still pending at the time of the research so it is not yet clear whether this process will strengthen or not the case for a harmonisation of CN and excise definitions of cigarillos.

- **INTERNAL MARKET AND COMPETITION**

The primary rationale of EU excise legislation is to contribute to the functioning of the Single Market. In fact, the removal of tax controls at the borders between Member States required the adoption of harmonised rules to facilitate cross-border movements and minimum rates to prevent competitive distortions. In this sense, the objectives of the Directive are fully coherent 'by design' with the general principles and aims governing the functioning of the internal market. As described in the intervention logic (Section 1.2) the Directive includes various explicit references to Single Market functioning, affirming in particular the following principles:

- the application of taxes should not distort the conditions of competition and impede free movements within the EU;
- the imperative needs of competition imply a system of freely formed price for all groups of manufactured tobacco;
- the persisting 'considerable differences' between MS as regards price and excise levels may have undesirable effects on the internal market, so a certain degree of convergence is required.

The review of the CJEU case-law concerning the excise duty on tobacco substantially confirms the ***pre-eminence of competition safeguard principles*** in the interpretation of excise legislation provisions. In this respect, in various instances the CJEU ruled against national provisions fixing (directly or not) minimum prices, on the ground that they distort competition while not being strictly motivated by tobacco control policy (see Table 4.1). Similarly, the CJEU rejected the Italian 'dual MED' because it was *de facto* establishing a disparity of treatment based on price. In another recent case, the CJEU clarified that the principle of fair competition regards primarily manufacturers and importers and that the free-formation of price concerns the maximum retail selling prices that these subjects need to establish and notify to the competent authorities. At the retail level, Member States may legitimately impose measures to control price levels (in accordance with Art 15.1, 2nd para).

[166] Source: EA 2018.
[167] Source: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62017CN0638

A further indicator of the substantial alignment of excise legislation with Single Market principles and rules is the ***absence of any relevant competition case*** regarding tobacco excise in the DG COMP case register.[168]

Table 4.1 – Summary of CJEU Case Law regarding excise duties on tobacco (after 2000)

Cases	Subject	Summary
C-197/08 Commission v France **C-198/08 Commission v Austria** **C-221/08 Commission v Ireland** **C-571/08 Commission v. Italy**	Dismissal of minimum retail price provisions for in certain MS	The Commission brought actions before CJEU against FR, AT and IE, because the legislation of those MS concerning the fixing of minimum prices for some manufactured tobacco products (as flat thresholds or as a % of the average price), were deemed contrary to (then) Directive 95/59 as the legislation undermined the freedom of manufacturers and importers to determine the maximum retail selling prices of their products and, correspondingly, free competition. CJEU confirmed that such norms could impair competition and added that minimum price policy measures are not required by FCTC obligations and by public health protection objectives in general. On the other hand, it added that MS may still prohibit the sale of manufactured tobacco at a loss.
C-428/13 Italy v. Yesmoke Tobacco spa	Dismissal of MED higher than the excise applicable above MPPC level	The case regarded the MED provision adopted by Italian authorities that envisaged an excise duty equal to 115% of the excise applicable to MPPC for products priced below the MPPC level. The CJEU ruling established that the MED should consistently apply to all cigarettes on the market to avoid distortion of competition. So differentiated regimes based on price levels (above or below the MPPC) are not admissible.
C-216/11 Commission v France	Dismissal of quantitative restrictions on products moved cross-border for own consumption	The case established that imposing a purely quantitative criterion per vehicle to determine the admissible amounts of tobacco that individuals can move across the border for own consumption (and not commercial purposes) would infringe Article 34 TFEU and the 'horizontal' excise legislation.
C-221/15 Belgium v. Etablissements Fr. Colruyt NV	Admissibility of national legislation prohibiting price rebate at retail level	The case clarified that Art 15(1) of the Directive does not preclude MS to prohibit retailers from selling tobacco products at a unit price that is lower than the price indicated by the manufacturer or importer on the revenue stamp affixed to the product, in so far as that price has been freely determined by the importer. The CJEU rejected also that Art 34 TFEU could be interpreted in that sense.
C-638/15 Czech Republic v. Eko-Tabak s.r.o.	Interpretation of the excise definition of 'smoking tobacco'	The case regards the interpretation of the definition of 'smoking tobacco' laid down in the Directive with respect to a 'borderline' semi-finished product. The issue derives from the unclear interpretation of certain terms used in the Directive definition, namely 'tobacco which has been cut or otherwise split' and 'industrial processing'. The CJEU eventually ruled that (1) since the product at stake consists of tobacco leaves which have been partly stripped in order to remove the petiole, and (2) it is ready, or can easily be made ready, by non-industrial means, to be smoked, then it fits with Art 5(1) of the Directive and should be considered an excise good and not raw tobacco.

[168] Based on Author's review dated 15 June 2018. All competition cases on tobacco that could be found regards either mergers and antitrust issues, or State aid to tobacco farmers and first processor (e.g. lending scheme at subsidized rates etc.).

Cases	Subject	Summary
C-126/15 Commission v. Portugal	Action against strict anti-forestalling measure	The case (ongoing) regards the Portuguese provisions requiring cigarette packets bearing a stamp for a given financial year to be sold and marketed only until the end of the third month of the year following that corresponding to the year shown on the stamp. The Commission has taken the view that those rules are not compliant with Directive 2008/118/EC, create obstacles to the free movement of goods, and go beyond what is necessary to prevent evasion, avoidance and abuse (infringing the proportionality principle).
C-638/17 Lithuania v. Skonis ir kvapas UAB	Interpretation of the excise definition of cigarillos	This ongoing case regards the definition of cigarillos laid down in the excise legislation, and specifically products where a paper layer has been added to cover the filter (not admissible according to the CN definition). The applicant's question regards how products with such characteristics should be classified in accordance to the Directive, and whether the visual similarity to cigarettes should enter the classification decision.

Source. *Authors' review of the CJEU Case Law, as published on CJEU website.*
Note: *the summaries provided by the Author might not entirely reflect the complexity and the nuances of the cases at stake. For a proper legal analysis, it is recommended to refer to the source: https://curia.europa.eu.*

4.2.2 Coherence with public health policy

The inclusion of health objectives into taxation policy is perfectly coherent with the EU Health in All Policy principles as stated in the EU Treaty and reiterated in the related 2006 Council Conclusions and this also includes taxation. Actually, the 2003/54 Council Recommendation on the prevention of smoking and on initiatives to improve tobacco control called on Member States to adopt and implement appropriate tax measures so as to discourage tobacco consumption.

➢ COHERENCE WITH THE TOBACCO PRODUCT DIRECTIVE

With the entry into force of the TPD2 some coherence issues with the Directive 2011/64 have emerged, namely:

- generally speaking the range of tobacco or nicotine-related products subject to control measures (i.e. under the TPD2) has become broader in scope than that of the Directive that considers traditional tobacco products only;
- in particular, novel tobacco products and e-cigarettes have been now specifically and separately regulated for public health purposes but remain not taxed under the EU excise system. Traditional oral tobacco products not for smoking or chewing had long been banned under the EU law subject to country-specific derogations and had therefore remained outside the scope of the common excise regime[169];
- Directive 2011/64 could not consider that the massive appearance of novel tobacco products generally classifiable as smokeless under the TPD2 (de facto heated tobacco products) and therefore subject to related MS notification procedures could be regulated as smoking or smokeless products for fiscal purposes, with related consequences on their free circulation under the excise system;

[169] Council Directive 89/622/EEC prohibits the sale in the Member States of certain types of tobacco for oral use. Directive 2001/37/EC reaffirmed that prohibition. Article 151 of the Act of Accession of Austria, Finland and Sweden grants these countries a derogation from the prohibition. Producers and the Swedish Government have long challenged their ban under the various TPD. Their inclusion in the common excise regime could have paradoxically paved the way to legal disputes under the EU law concerning their free circulation. For other smokeless tobacco products that are not produced for the mass market, they were marginal at that time and it was deemed that strict provisions on labelling and certain provisions relating to their ingredients under the TPD2 could be considered sufficient to contain their expansion in the market beyond their traditional use without the additional burden represented by the EMCS.

- In a similar way Directive 2011/64 could not consider that the TPD2 would attract e-cigarettes within the scope of tobacco control legislation and make them subjected to similar cross-border bans on advertising as normal smoking products. This however was not extended to novel tobacco products that were left in a limbo[170].

➢ COHERENCE WITH THE FRAMEWORK CONVENTION ON TOBACCO CONTROL

The WHO Framework Convention on Tobacco Control (FCTC) is the first global public health treaty based on scientific evidence and aimed to counter the tobacco epidemics worldwide. It was adopted by the World Health Assembly in May 2003 and has entered into force since February 2005 soon after the fortieth signatory party ratified it. The FCTC commits the signatory parties with the obligations of international law. These include both the EU - that signed it in its own capacity - and the individual Member States that have signed and ratified the Convention. The FCTC is divided into ten parts composed of various articles grouping both demand reduction measures (such as price and tax measures, protection from exposure to tobacco smoke, content and disclosure of tobacco products, packaging and labelling, etc.) and supply reduction measures (such as illicit trade, sales to minors and support to farmers for economically viable alternative activities). The public health objective of the Directive is clearly ***coherent with Article 6 of FCTC***, which encourages price and tax measures as effective means to reduce the demand for tobacco. These includes driving the prices of tobacco products up through taxation, as well as prohibition or restriction of sales of tax- and duty-free tobacco products.

The overall coherence with the FCTC principles does not necessarily extend to the operational level since the FCTC Guidelines for the implementation of Art. 6 were approved in October 2014 (COP-6)[171] and have therefore become available only after Directive 2011/64 entered into force. These guidelines (see Box 4.1 below), although not legally binding, give an indication of the type of policies and commitments that the signatories should adopt to align with the principles and the goals of the Convention. In general, the guidelines are much more far-reaching than the Convention itself and more accurately reflect the up-to-date scientific consensus in tobacco control.

Box 4.1 - Coherence of Directive 2011/64 with the FCTC Art.6 Guidelines on Tobacco Taxation

Art. 6 Guideline Recommendations encourage[172] signatory parties to take the following principles into account:

1. When establishing or increasing their levels of taxation they should take into account both price elasticity and income elasticity of demand, as well as inflation and changes in household

[170] So, the situation has been created where the advertisement of devices for heated tobacco products could be considered as legal under the Directive, but is not as far as e-cigarettes are concerned. This sent mixed signals on the approach to be eventually followed for their taxation. Today, most tobacco control policies apply only to smoking tobacco strictly speaking, but not necessarily to the novel products that have recently appeared on the market such as heated tobacco products, although this situation is being remedied as the different Directives undergo their own revision process. Substantial variation is reported at the MS level in how far heated tobacco and e-cigarettes have been assimilated to traditional cigarettes. This regard, first and foremost, bans on smoking in public places and protection from exposure to second hand smoke, but also the possibility of advertising them at the national level.

[171] The WHO Treaty is governed by a Conference of the Parties (COP) meeting biennially. The COP adopts, among others, guidelines that could serve as tools to steer the implementation of the Convention. Several sets of guidelines have been adopted so far, to assist the Parties in meeting their implementation obligations under the FCTC.

[172] It is worth remarking that the guidelines on pricing and taxation policy – evidently a sensitive subject for the signatory Governments - fully respect the sovereign right of the Parties to freely determine and establish their taxation policies as they deem fit, as set out in Article 6.2 of the FCTC itself.

income, to make tobacco products less affordable over time. They should consider having regular adjustment processes or procedures for periodic revaluation of tobacco tax levels. This principle is not incorporated in the text of Directive 2011/64.

2. They should consider implementing specific or mixed excise systems with a minimum specific tax floor, as these systems have considerable health-related advantages over purely *ad valorem* systems, a principle fully endorsed by the EU excise legislation since its origin.
3. They should establish coherent long-term policies on their tobacco taxation structure and monitor them on a regular basis including targets for their tax rates. Tax rates should be increased or adjusted on a regular basis, potentially annually, taking into account inflation and income growth developments. This is not to be found in the text of the Directive. It is noted that the WHO has made recommendations that the share of excises should reach at least 70% of the retail price of tobacco products.[173] To this end the weighted average product price (WAP) is preferred as a benchmark for reference. The 70% threshold referred to excise only was opposed by the EU representatives on account of the disparities of effects it would have at country level when compounded to different levels of VAT.
4. They should ensure that all tobacco products be taxed in a comparable way, in particular when the risk of down-trading substitution exists. They should ensure that fiscal incentives for users to shift to cheaper products in the same product category or to cheaper tobacco product categories, as a response to tax increases, are brought to a minimum – a principle broadly in line with the Directive.
5. They should consider imposing effective anti-forestalling measures – a possibility that had been examined by the Commission following the Ramboll 2014 evaluation and then discarded.
6. They could consider earmarking tobacco fiscal revenues for tobacco-control programmes, an area that falls outside the scope of the EU competencies.
7. They should consider prohibiting or restricting the sale to and/or importation by international travellers, of tax-free or duty-free tobacco products – a matter that is regulated by the Directive 2008/118.

Electronic Nicotine (and non-Nicotine) Delivery Systems (ENDS / ENNDS) – a definition that largely coincides with e-cigarettes - have also been examined by the FCTC committees, although they formally fall outside its remit. In particular, COP-6 mandated the WHO with the preparation of a report on e-cigarettes to be submitted to COP-7 as a first step for the possible preparation of guidelines on the subject. So far, the Conference has remained fairly neutral on the subject and eventually adopted the WHO Report, which underlined the lack of conclusive evidence on the role of these products in tobacco control and invited Parties to consider regulatory measures in line with national laws and public health objectives for traditional products.

The FCTC does not include any ex ante quantifiable targets or performance indicators, but in 2016 the COP-7 approved a decision that set the overall objective of reducing the prevalence of current tobacco use in people aged 15 years and over by 30% before 2025[174]. The reduction of smoking prevalence remains the key indicator of reference, although in some recent documents the WHO has put the emphasis also on health inequalities, raising (1) the issue of smoking prevalence among women, which remains

[173] This measure was reportedly opposed by the Commission, considering the disparities of effects at country level possibly caused by the compounded application of VAT.

[174] This complements the objectives set in other relevant 'background' policy documents (not formally part of the FCTC). So, in the 2002 European Tobacco Control Strategy of WHO Europe the target was to '*at least double the average annual reduction of smoking prevalence in the Region, which currently stands at nearly 1%. The reduction in smoking rates may vary from a significant fall in countries with still high smoking prevalence to a more moderate decrease in countries that have already achieved lower prevalence*.' Then, the WHO's Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013–2020 calls for a stronger implementation of the FCTC that is also considered instrumental in advancing the UN's Sustainable Development Goal 3, setting a global target of reducing tobacco use and premature mortality from non-communicable diseases by a third by 2030. Some Ministries of Health, also in the EU, have also shown some degree of endorsement to the lighthouse decision of the Government of New Zealand to come to a smoke-free society by 2025 and reduce total smoking prevalence down to 5% by then. This target has been variously incorporated in their policy documents.

a particular cause of concern in many EU countries and (2) the issue of the least educated, which appear the most resilient social group in undertaking smoking cessation and the most difficult to reach and treat.[175] No specification, however, was given on the role played by fiscal policies in this respect.

Various mechanisms have been put in place to monitor progress with FCTC implementation, primarily by means of policy indicators,[176] which compound the WHO monitoring system already in place in this area. The purpose of monitoring seems identifying and addressing the possible difficulties in putting the FCTC recommendations into practice by signatory parties rather than coming to a fine-tuned assessment of its impacts.[177] The number of countries that had sufficiently raised tobacco taxes was defined as those where the total level of taxes had reached at least 75% of the retail price of cigarettes. A benchmark that, at that time, had been reached by 29 countries over the 53 for which data were available for the WHO Europe Region, and by 20 EU countries out of 28. It is worth noting some differences in the criteria used by the WHO to monitor the FCTC implementation and those laid down in the FCTC Guidelines on Art. 6 namely:

- the WHO makes reference in its calculation to the price of the most sold brand rather than the weighted average price (WAP);
- the 75% benchmark on the incidence of taxation on prices encompasses all consumption taxes (including customs duties and VAT) and not only excise duty as in the COP guidelines.

The first point has led to some incongruence with the data reported, because the price of the 'most sold product' can differ from the WAP and therefore the incidence of excise duty on price also does. Paradoxically, if the WHO parameters were used, some seven EU countries would have been not compliant with the target, in 2017, as compared to just two if the EU WAP-based data were used.

- **STAKEHOLDERS VIEWS**

While the public health experts and NGOs interviewed raised no concern as to the coherence of the excise regulatory framework with the provision of the TPD2, the survey of EU public health institutions returned much more mixed views and elicited reservations among some half of respondents. This mainly derives from the dissatisfaction with the more limited scope of the excise legislation, which does not currently include e-cigarettes

[175] For instance, in its recent guidelines WHO Europe recommends to include measures of socioeconomic status in all routine tobacco prevalence surveys to monitor progress in the different groups and better steer action. This however does not extend to any particular technical recommendation on how taxation policy should be implemented, except that smoking cessation support should be made affordable and accessible to low-income groups.

[176] First of all, the FCTC has a secretariat that maintains a database of policy measures self-reported by the signatory parties. COP-7 was informed that 115 Parties had reported levying some form of excise tax on cigarettes. The slight majority of them applied a combination of specific and ad valorem taxes and had increased their rates over the last two years, but only some of them by more than the level of inflation. Several parties, however, claimed having at least some mechanisms in place to automatically adjust their rates in relation to inflation or other objective parameters. Moving from policy measures to more measurable targets on the underlying phenomenon, at COP-6 an expert group was entrusted with carrying out an impact assessment of the FCTC on global smoking prevalence over the last decade. Five key indicators (taxation, exposure to smoke, packaging and labelling, advertising and cessation programmes) were selected for more in-depth analysis. No analysis, however, could be made of how the different levels of taxation have impacted on the overall smoking prevalence and the authors acknowledged that their methodology was likely to underestimate impact on countries implementing the Treaty at the highest level in the different areas, including taxation.

[177] In 2015, before the TPD2 entered into force, WHO Europe published a table summarising the progress achieved by Parties in the WHO Europe Region towards the achievement of the FCTC objectives. The analysis drawn from the data published in the 2015 WHO report on the global tobacco epidemic focused on the five criteria largely coinciding with those considered in the impact study above, over and above the sheer number of the WHO Europe countries that had ratified the Treaty to date (50 out of 58)

and is uncertain on heated tobacco products.[178] The issue was raised not only in countries that have adopted national taxes on e-cigarettes, but also by representatives of institutions of countries that have maintained so far, a more neutral approach.

It is worth noting that low satisfaction with the coherence of the Directive with the TPD2 correlates with low satisfaction with the coherence of the Directive with the FCTC. This forms a cluster of some half of respondents unsatisfied overall. Here, the reasons for complaint were mainly represented by (1) the lack of mechanisms indexing excise rates to inflation or real income trends and (2) the insufficient level of taxation for alternative smoking products, like FCT and others (some explicitly complained about the lack of provisions for herbal smoking products and e-cigarettes, which are perceived as increasingly attractive to the youth and therefore a source of concern). Criticism about the Directive not being sufficiently in line with the provisions of the FCTC as regards FCT was often voiced also by public health experts and NGO stakeholders consulted. Actually, just one respondent among public health authorities scored a high or very high degree of satisfaction in these areas (see Table 4.2 below).

Table 4.2 - Overall level of satisfaction with the objectives and measures laid-down in the EU tobacco excise legislation in ensuring a high level of health protection

	Very high	High	Intermediate	Low	Very low	Don't know
Coherence of EU excise legislation with the EU tobacco policy (i.e. the Tobacco Product Directive and related policies)	1	0	8	3	1	2
Coherence of EU excise legislation with the international Framework Convention on Tobacco Control objectives and priorities concerning the protection of public health	0	1	7	4	1	2

Source: *Targeted consultation of Public Health Authorities (15 respondents).*

4.2.3 Coherence with policy against illicit trade and frauds

- **OVERALL COHERENCE WITH EU POLICIES AND TARGETS**

The general EU excise legal framework has among its general goals to contribute to fight illicit trade of tobacco and tax fraud, and some measures have indeed been adopted to this purpose. This is primarily the case with the EMCS (see 4.2.1), which allows a computerised monitoring of all movements of excise goods under duty suspension, as well as with the various measures concerning the identification of authorised holders, the establishment of bonded tax warehouses, the issuance of financial guarantees etc., which are geared towards enhancing the control and enforcement capacity of tax authorities and reducing the room for tax fraud. These measures are further complemented by policies and tools for the exchange of information and administrative cooperation between Member States and with third countries.

Most of these measures relate to the 'horizontal' excise legislation and its implementing acts, while the contribution of the 'vertical' excise legislation to this framework – including Directive 2011/64 - is less direct. In fact, it consists primarily of two main elements:

- The progressive ***convergence*** in tax (hence price) levels between MS, which intends to reduce the incentives for fraudulent cross-border trade of duty-paid products from low-taxing to high-taxing EU countries. This is the only explicit reference in the Directive to the need to help fight fraud and smuggling. It should be noted that also

[178] For some respondents this issue extends to other products not covered by the Directive such as herbal smoking products and any other product conducive to smoking as a habit.

on the antifraud policy side, the issue of tax-induced effects and the need to avoid creating economic incentives for smuggling received limited emphasis. In fact, there is no specific items in this respect in the 2013 Action Plan on the fight of illicit trade of tobacco[179], and no reference to it in the recent Council Conclusions on the related EU strategy.[180]

In the EU antifraud policy framework, the issue of 'convergence' is explicitly mentioned only in relation to non-EU Eastern neighbouring countries, with reference to the need of fostering their approximation to EU excise structures and rates through bilateral dialogue and multilateral initiatives. In this sense, it can be argued that there is *de facto* coherence between the intra-EU convergence priority of the Directive and the provisions laid down in the Association Agreements with e.g. Ukraine and Moldova, which state that: '*The Parties shall develop their cooperation and harmonise policies in counteracting and fighting fraud and smuggling of excisable products. This cooperation will include, inter alia, the gradual approximation of excise rates on tobacco products, as far as possible, taking into account the constraints of the regional context, including through a dialogue at regional level and in line with the World Health Organisation Framework Convention on Tobacco Control of 2003. To this end, the Parties will look to strengthen their cooperation within the regional context.*'[181]

- The establishment of ***common definition and categorisation*** of excisable tobacco products to avoid abuse and circumvention. The Action Plan 2013 actually went further proposing the 'alignment of definition of excisable tobacco with customs definitions'. As discussed, the matter was examined both in the framework of Ramboll 2014 and EA 2018, but the advantages of a full alignment did not actually emerge. On the opposite, the fact that the excise treatment does not directly depend on the CN classification (as it is for instance the case with alcohol) reduces the risk of misuse of the CN classification e.g. an extensive recourse to Binding Tariff Information (BTI) for 'tax optimisation' purpose.

  Actually, the EBTI database does contain several items on unmanufactured tobacco products (CN 2401), and it is possible[182] that some of these BTI opinions – although the instrument strictly relates to customs classification and is not intended for excise categorisation purposes – are in fact connected to the uncertainties discussed above with the definition of 'smoking tobacco' laid down in the Directive. More specifically, the subjective elements contained in such definition make the distinction between exciseable smoking tobacco and non-exciseable semi-processed tobacco not clear-cut, so it is possible that certain BTIs are sought by some operators to back-up their non-exciseability claims.

  As the abovementioned CJEU C-638/15 case demonstrates, it is also possible that the uncertainty with the 'smoking tobacco' definition creates room for 'borderline' products, such as the so-called 'bulk tobacco', i.e. tobacco that can be smoked after simple non-industrial processing (see Section 3.2.2). When classified as raw tobacco, 'bulk tobacco' can be moved outside the EMCS and fraudulently avoid taxation.

[179] SWD(2013) 193 Final. Anti-smuggling Action Plan accompanying the document "Communication from the Commission to the Council and the European Parliament Stepping up efforts to fight against cigarette smuggling and other forms of illicit trade in tobacco products– A comprehensive EU Strategy". As discussed in Section 1.3 there is only a brief reference in the Commission Report of 2017 to the possible role of taxation in contributing to price differences, which is a main incentive beyond illicit trade (COM(2017) 235 final).
[180] Council conclusions on stepping up the fight against illegally traded tobacco products in the EU - Council conclusions (7 December 2017).
[181] See the Association Agreement between the European Union and its Member States, of the one part, and Ukraine, of the other part. http://trade.ec.europa.eu/doclib/docs/2016/november/tradoc_155103.pdf
[182] A more granular analysis is not feasible since the details of the products covered by BTI are confidential and not accessible by third parties.

Finally, it can be noted a certain misalignment between the need to scale up analytical capacity (and pooling of resources) on illicit trade that is expressed in the general EU strategy and the paucity of statistics and data that can be drawn to this end from the monitoring system in place at both EU and MS levels. As the consultation of tax authorities confirm, Member States are often ***not in the position to measure the extent of illicit trade*** and tax revenue losses in their countries, especially when it comes to 'niche' and/or emerging phenomenon like 'bulk tobacco' and water-pipe tobacco. Therefore, detailed, robust and comparable data seem strictly necessary to assess with sufficient precision the link between tax regimes and illicit trade and develop evidence-based fiscal policies able to effectively support antifraud policies. Possibly, this gap could be filled by the prospective methodology for the assessment of illicit trade that OLAF has recently commissioned.

- **STAKEHOLDERS VIEWS**

The majority of MS tax authorities consulted expressed a positive overview of Directive's coherence with both the EU policies to fight against illicit trade of tobacco as well as with the Framework Convention on Tobacco Control and the related Protocol to eliminate illicit trade in tobacco products (although this regards more closely TPD2). Unsurprisingly, a certain polarisation is apparent, with high-taxing MS possibly more concerned of the alignment with the 'convergence' priority, while low-taxing MS more focussed on maintaining tax rates at levels that do not incentivise 'black market' growth growth (see Table 4.3)

Table 4.3 – Consultation results on the Directive's coherence with antifraud policies.

	Very high	High	Intermediate	Low	Very low	Don't know
Coherence with the EU strategy on fight against illicit trade	0	9	6	2	1	4
Coherence with FCTC Protocol to eliminate illicit trade in tobacco products	0	9	4	2	2	5

Source: *Targeted consultation of tax authorities (24 respondents).*

COHERENCE - SUMMARY OF KEY FINDINGS

1. The Directive is coherent with the EU excise and customs framework, as well as with the overall principles and policies governing the Single Market. At an operational level, this could be further enhanced by fixing some minor issues concerning the definitions of 'smoking tobacco' and 'cigarillos'.
2. The Directive aims at contributing to the EU and the international policies (namely FCTC) on tobacco control and the protection of public health, but beside the general principles the concrete measures adopted are not entirely satisfactory for public health stakeholders.
3. There are limited explicit cross-references between the tobacco excise legislation and the EU policy against illicit trade and tax fraud, which leave large room for strengthening connections and synergies, especially as regards the analytical dimension of the impact of taxation on illicit trade.

4.3 Relevance

4.3.1 Relevance of minimum rates

- **CIGARETTES**

The 'relevance' of the EU minima regards the extent to which the rates laid down in the Directive are (still) able to produce an effect on the excise duty levels applied in MS, thereby contributing to the overall policy objectives. In other words, assessing the relevance of the EU minima consists in comparing them with the actual excise rates applied to the relevant categories of cigarettes in the national markets, to see if and how they can still stimulate tax increases. Two factors should be considered:

- The EU minima have different reference values: the 'relative minimum' is measured at the WAP level, while the 'fixed minimum' regards all price categories, which is tantamount to say that if the lowest price category is compliant then it can be assumed that the entire market is compliant.
- The EU minima in force until the end of 2013 had partly been in place since 2006 (i.e. the relative minimum level of 57%) and partly introduced in 2010 (i.e. the switchover from 'most popular price category' MPPC to 'weighted average price' WAP, and the extension of the EUR 64 fixed minimum amount to all cigarettes and not only to MPPC ones). So, MS were supposed to be in line with these minima well before the introduction of the Directive, with the exception of countries of recent accession who were granted a transitional period until the end of 2009 to reach the 2006 minima. EU minima have increased, reaching the current level, at the beginning of 2014, but a transition period has again been extended to nine countries of recent accession (BG, EE, EL, HR, HU, LT, LV, PL and RO) allowing them to align with these minima by the beginning of 2018.

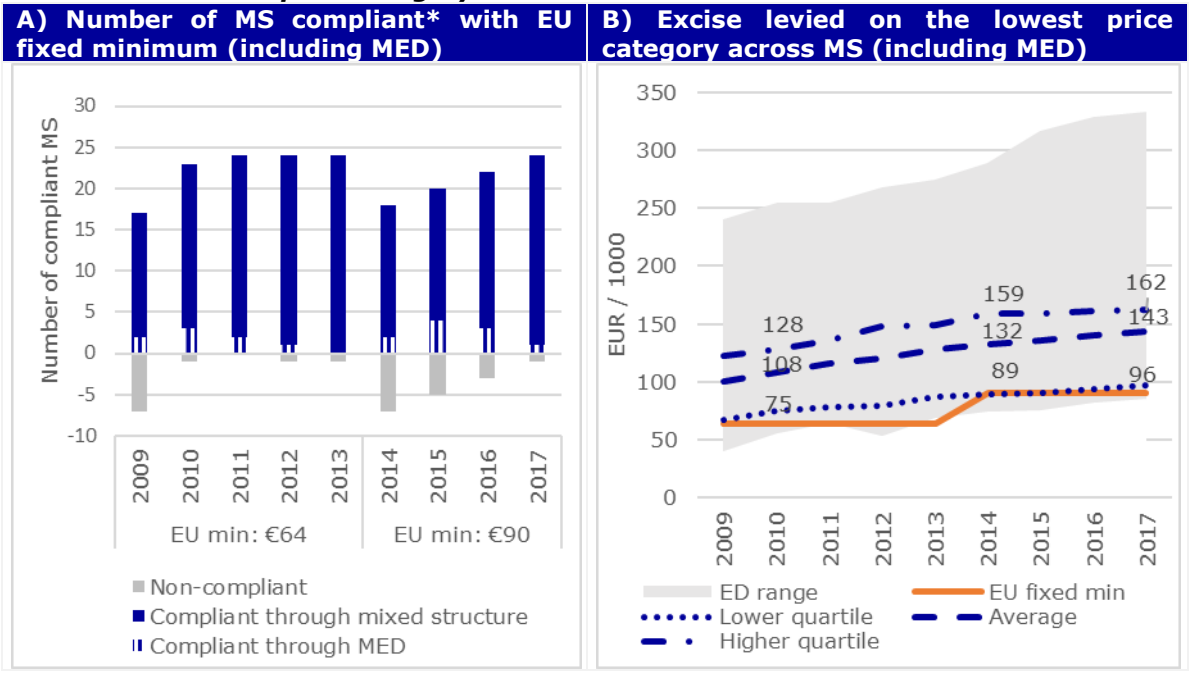
To assess the relevance of the ***fixed minimum amount*** we have calculated the overall excise duty[183] levied on the lowest price category of cigarettes in all MS and compared it to the EU minima of EUR 64 (until 2013) and EUR 90 (after 2014). Figure 4.1.A below shows that the number of MS below the EUR 64 requirement reduced from seven in 2009, to none in the first year since Directive's introduction. Then, when the new EUR 90 minimum was introduced in 2014, seven countries were again 'non-compliant'[184] (but in all cases, except CZ[185], under the transitional period), which progressively reduced to zero since the beginning of 2018.[186] In this sense, it can be affirmed that the current fixed minimum is no longer relevant since it cannot have any further 'traction' effect on the excise levels of MS - although it may still avoid that taxation rates drop below the current levels.

Additionally, Figure 4.1.B shows how the EU fixed minimum has evolved in comparison with the actual excise duty levied in MS on the lowest price category of cigarettes. It is evident how the EU minimum has traditionally impacted only low-taxing countries (i.e.

[183] According to Art. 10 of the Directive the 'overall excise duty' is the sum of the specific and ad valorem component. It is not clear whether the MED can concur or not to meeting the EU minima requirements. In this Study we have generally considered both cases specifying, where relevant, when the analysis includes MED or not.
[184] In this Report, by 'compliance' with EU minima we refer to the sheer fact that one country meets the prescribed rate levels, irrespectively whether this is permitted (or not) by the transitional period. It should therefore not be understood as 'legal' compliance.
[185] Based on Euromonitor price data the excise duty on the lowest price category in CZ has remained below the EUR 90 threshold until 2016, when the MED was raised to ca. EUR 92.7. However, it cannot be excluded that this is due to issues with the observational data reported by Euromonitor.
[186] This can be assumed considering the tax hikes adopted in certain MS since January 2018, but it cannot be verified precisely, since price data for 2018 will be available only at the end of March 2019.

the 'lower quartile' displayed in the Figure), while the majority of MS has always been well-above the prescribed levels. At the same time, it can be assumed that the impacts on tax levels of low-tax countries have, in turn, an 'indirect' effect also on high-tax countries. This is confirmed by MS authorities themselves, with a dozen countries reporting an 'intermediate' or 'high' influence of other countries' rates on their own rates.

Figure 4.1 – Relevance of the EU fixed minimum for cigarettes with respect to the excise levied on the lowest price category

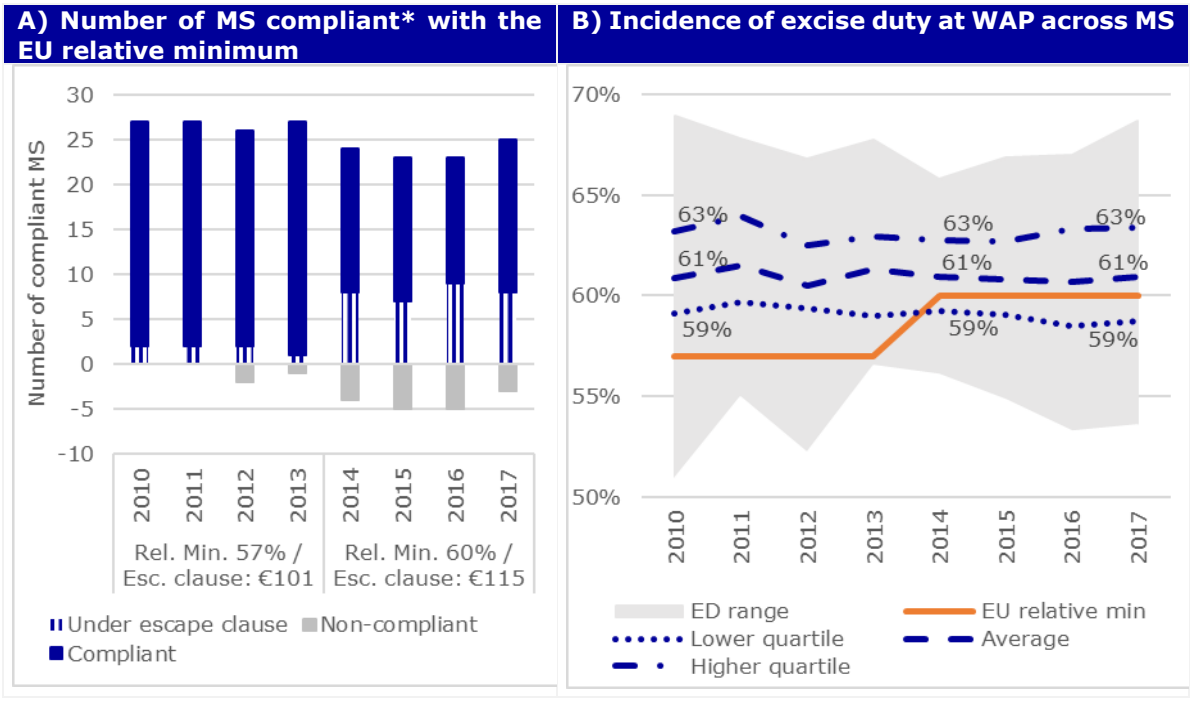


Source: *Author's elaboration based on EDT and Euromonitor International price data.*
Legend: *Lower quartile / Average / Higher quartile= excise duty levied on lowest price category of cigarettes across EU countries measured respectively at 25% and 75% percentiles and EU average; ED range= range (from minimum to maximum) of excise duty levied on lowest price category of cigarettes.*
Note: *(*) 'compliance' should be interpreted as 'meeting the EU fixed minimum' but not as 'legal compliance', since some MS were granted a transitional period to reach the prescribed levels. The lowest price category is based on Euromonitor International observational data. In a few cases, such data appeared below the 'lowest viable price' (i.e. trading at a loss). This could be due to industry practice (where allowed) or most likely to the delayed effects on price levels of tax increases. In such cases (some 7% of the entire data series), we have replaced the 'observed' lowest market price with the theoretical 'lowest viable price'. LU, MT, CY and HR (until 2012) are not included in Figure A for lack of observational price data (in Figure B, data gaps were filled considering the applicable MED). As regards the EU fixed minimum of EUR 64, it should be noted that: (1) until 2010 it referred to MPPC cigarettes so it is not comparable to the following years; (2) new accession MS were granted a transitional period until the end of 2009 to reach the 2006 minima.*

To assess the relevance of the ***relative minimum amount*** we have calculated the excise duty incidence at WAP in all MS and compared it to the EU minima of 57% (until 2013) and 60% (after 2014). Similarly, we have estimated the compliance with the 'escape clause' measuring the amount of excise duty levied at WAP and comparing it with the escape clause thresholds, i.e. EUR 101 until 2013 and EUR 115 since 2014. As Figure 4.2.B below shows, the incidence trend seems quite independent from the EU relative minimum increase of 2014, both on average and for given percentiles analysed. This is explained by two factors: (1) the transitional period extended to certain MS; and (2) the greater reliance after that date on the 'escape clause'. As shown in Figure 4.2.A, number of countries derogating the EU relative minimum through the 'escape clause' moved from 1-2 before 2014 up to 7-9 after that date. In this sense, it can be affirmed that the 'escape clause' has had two opposite effects on convergence: on the one hand it has avoided an enlargement of the gap in monetary terms between low-tax and high-tax countries, on the other hand it has hindered a greater convergence in terms of excise incidence on price.

For countries below the 'escape clause' thresholds (ten MS at the end of 2017), it can be argued that the EU relative minimum will continue being relevant, since future price increases may bring the excise incidence down. However, more countries will also reach the 'escape clause' thresholds so such relevance is set to progressively decline.

Figure 4.2 – Relevance of the EU relative minimum for cigarettes with respect to the excise levied at WAP



Source: *Author's elaboration based on EDT (integrated by Euromonitor-based WAP data, where required).*
Legend: *Lower quartile / Average / Higher quartile= incidence of excise duty at WAP across EU countries measured respectively at 25% and 75% percentiles and EU average; ED range= range (from minimum to maximum) of excise duty incidence at WAP across all MS.*
Note: *(*) 'compliance' should be interpreted as 'meeting the EU relative minimum' but not as 'legal compliance', since some MS were granted a transitional period to reach the prescribed levels. The incidence is calculated using the WAP of the concerned year (that is the year before the EDT reporting year), and for this reason the results may not coincide with EDT figures. HR figures until 2012 are not included in the analysis. The baseline starts in 2010, since previously incidence was measured on MPPC, so data are not comparable. For countries outside the Eurozone (and without a fixed currency exchange rate) the fluctuation of WAP levels can be partly due to exchange rate trends.*

➢ FINE CUT TOBACCO

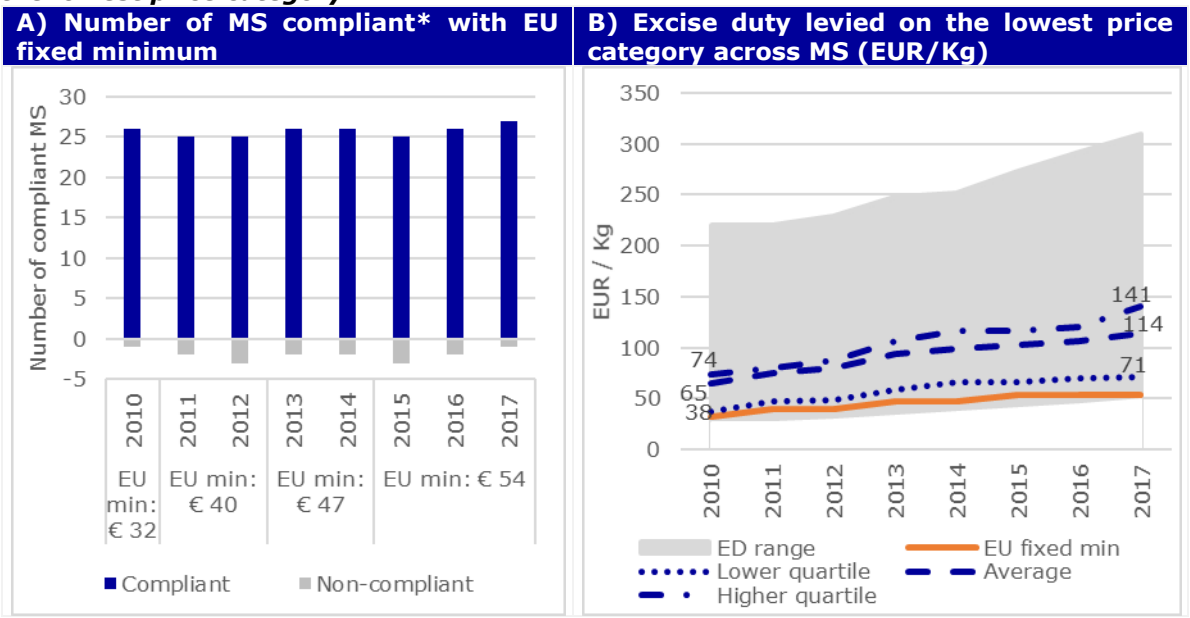
The EU minima for FCT consist again of a fixed minimum amount applicable to all products and a relative minimum rate referred to WAP level category. Unlike cigarettes, the EU minima for FCT are 'alternative' instead of 'cumulative' conditions, so it is sufficient for MS to be in line with either of the two prescribed conditions.[187] There is no mixed structure requirement for FCT, and the majority of MS (17 in 2017) have opted for a fully specific taxation, while a couple has chosen a fully ad valorem taxation (plus MED), and nine a mixed structure (all but one inclusive of MED). In the case of fully specific or ad valorem regime, the legal compliance has been straightforwardly assured by fixing national rates above the corresponding EU minima (fixed or relative), while in the case of countries with a mixed structure in nearly all cases the compliance with the fixed minimum requirement is assured by the MED.[188]

[187] Evidently, this makes any 'escape clause' provision redundant and for this reason it has not been adopted for FCT and other tobacco products.
[188] In 2017, the only exception was represented by Luxembourg, which was meeting the relative minimum criterion summing up the specific and the ad valorem components.

The possibility for MS to align with only one of the two EU minima makes the analysis of relevance less straightforward, since the two requirements are not independent of each other, as in the case of cigarettes. In other words, while for cigarettes increasing the level of one of the two requirements would automatically enhance its relevance, for FCT it might be useless if the other requirement remains 'easier to meet'.

Figure 4.3 below summarises the position of MS with respect to the ***EU fixed minimum***. It emerges that, despite the frequent staged increases enacted in the period, this requirement has been relevant for only a small number of countries, and that the tax trends in MS were tendentially greater than the EU mandated increases. In particular, in 2017, only one country was still below the EU fixed minimum, while the EU average excise levied on the lowest price category has reached a level twice as high as the EU minimum. This would suggest a substantial irrelevance of the EU fixed minimum requirement, although it has to be considered that since January 2018 the minimum rate has further increased to EUR 60 per Kg. The impact of such increase cannot be measured yet, but it won't be significant since at the end of 2017 only three MS were below this threshold (HU, LU, and LT).

Figure 4.3 – Relevance of the EU fixed minimum for FCT with respect to excise levied on the lowest price category

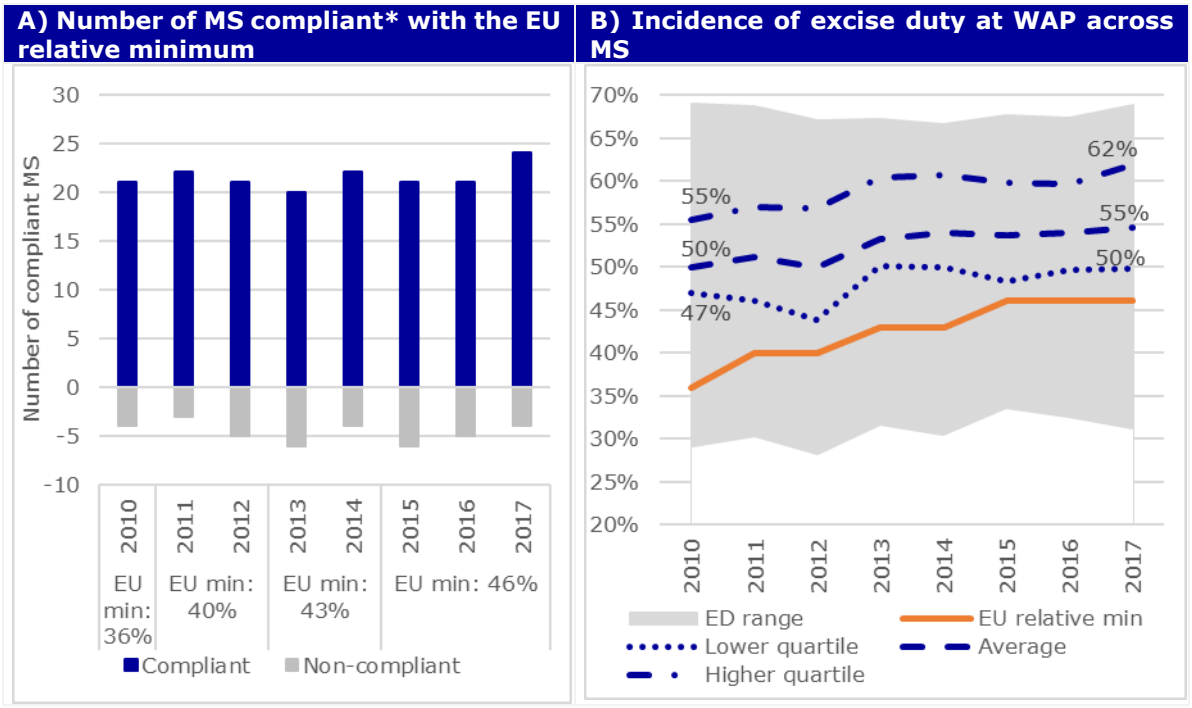


Source: *Author's elaboration based on EDT and Euromonitor International price data (or modelled on existing data, when not otherwise available).*
Legend: *Lower quartile / Average / Higher quartile= excise duty levied on lowest price category of FCT across EU countries measured respectively at 25% and 75% percentiles and EU average; ED range= range (from minimum to maximum) of excise duty levied on lowest price category of FCT.*
Note: *(*) 'compliance' should be interpreted as 'meeting the EU fixed minimum' but not as 'legal compliance', since MS not compliant with the fixed minimum criterion may be compliant with the relative minimum criterion. The lowest price category is based on Euromonitor International observational data. In the case of CY, MT and RO price data are not available, but since the excise duty structure is fully specific the compliance with the fixed minimum can be nonetheless verified. As concerns LU, detailed price data are unavailable and the structure is mixed, so it is not possible to verify compliance. However, since there is no compliance at WAP level it can be inferred that there is no compliance also at the lowest price levels. It is possible that in some cases non-compliance is temporary, due to the delayed effects on price levels of tax increases.*

The number of MS falling below the ***EU relative minimum*** for FCT in the period considered has been fluctuating from three to six countries (Figure 4.4.A), somehow in line with the staged increases of this requirement. Additionally, it can be noted in Figure 4.4.B that the average incidence of excise at WAP has followed a trend fairly consistent with the EU relative minimum trend (at least as compared to the similar trends registered

for cigarettes). The EU relative minimum has increased since January 2018 (to 48%) and a further step is planned for 2020 (up to 50%), so it could be argued that this requirement is going to maintain its relevance in the near future. However, as discussed, the mechanism of 'alternative' requirements may eventually neutralise the impact of such increases since the above fixed minimum is going to remain easier to meet for MS.

Figure 4.4 – Relevance of the EU relative minimum for FCT with respect to excise levied at WAP



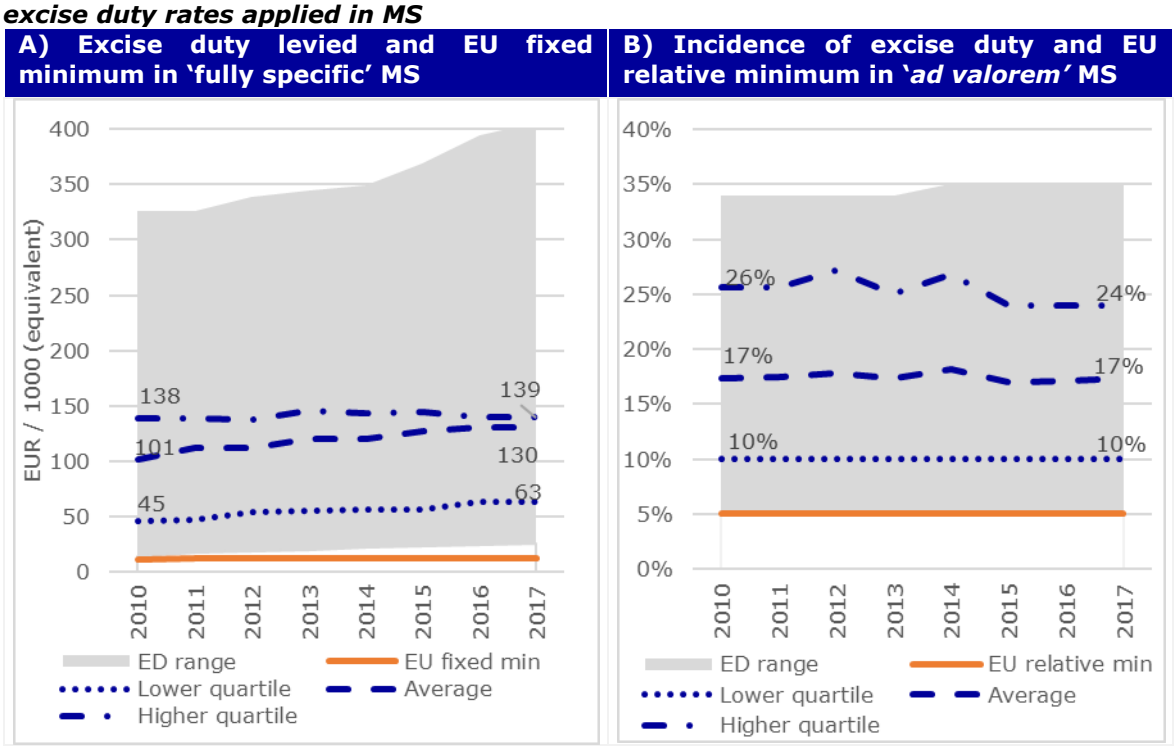
Source: *Author's elaboration based on EDT (integrated by Euromonitor-based WAP data, where required, or modelled on existing data, when not otherwise available).*
Legend: *Lower quartile / Average / Higher quartile= incidence of excise duty at WAP across EU countries measured respectively at 25% and 75% percentiles and EU average; ED range= range (from minimum to maximum) of excise duty incidence at WAP across all MS.*
Note: *(*) 'compliance' should be interpreted as 'meeting the EU relative minimum' but not as 'legal compliance' since MS not compliant with the relative minimum criterion may still be compliant with the fixed minimum criterion. The incidence is calculated using the WAP of the concerned year (that is the year before the EDT reporting year), and for this reason the results may not coincide with EDT figures. CY, MT and HR (until 2011) are not included in the analysis for lack of data. For countries outside the Eurozone (and without a fixed currency exchange rate) the fluctuation of WAP levels can be partly due to exchange rate trends.*

➢ CIGARS AND CIGARILLOS

The EU minima for cigars and cigarillos include a fixed minimum and a relative minimum that, as for FCT, are alternative and not cumulative. Unlike FCT, both these minima apply to all products, with no reference to WAP. In this sense, MS who apply a fully specific or a fully ad valorem (plus MED) excise duty has generally ensured compliance with EU minima by fixing their rates above the corresponding EU fixed or relative minimum levels. Under a mixed structure regime, it would be theoretically feasible to comply with EU minima setting both the specific and the ad valorem rates below the EU minima levels if the sum of the two components exceed such levels. In practice, the only three countries applying a mixed structure to cigars and cigarillos (FR, DE and DK) have set at least one of the two rates above the EU minima levels.

The Figure 4.5 below, shows how the excise duty rates applied in MS have evolved in relation to the two EU minima requirements.[189] The results indicate that with minor exceptions (i.e. the ad valorem rate in the NL that corresponds to the EU relative minimum) the EU minima are in general irrelevant if compared to current MS tax levels. This finding is reinforced by the fact that no updates of minima took place in the period examined and that the last increase (in 2010) was a minor one – i.e. from € 11 to € 12 per Kg or 1000 units, with no change of the relative minimum rate.

Figure 4.5 – Relevance of the EU relative minima for cigars and cigarillos with respect to excise duty rates applied in MS



Source: *Author's elaboration based on EDT.*
Legend: *Lower quartile / Higher quartile / Average= excise duty levied on cigars and cigarillos in MS (in monetary terms (A) or incidence (B)) measured respectively at 25% and 75% percentiles and EU average; ED range= range (from minimum to maximum) of excise duty.*
Note: *The 'fully specific duty' countries are: BG, CY, CZ, EE, HR, IE, LT, LV, MT, PL, RO, SE, SK, UK. Of these, six applies the duty 'per Kg' instead of 'per units' (i.e. CY, IE, LT, PL, UK). In these cases, we have converted for comparability the excise levels into units using the 1.25g=1 unit conversion rate. 'Ad valorem' countries are: AT, BE, EL, ES, FI, HU, IT, LU, NL, PT, SI. All of them except EL, FI and NL also apply a MED (FI has introduced it in 2018). The remaining countries (DE, DK, FR) apply a mixed structure.*

- **OTHER SMOKING TOBACCO**

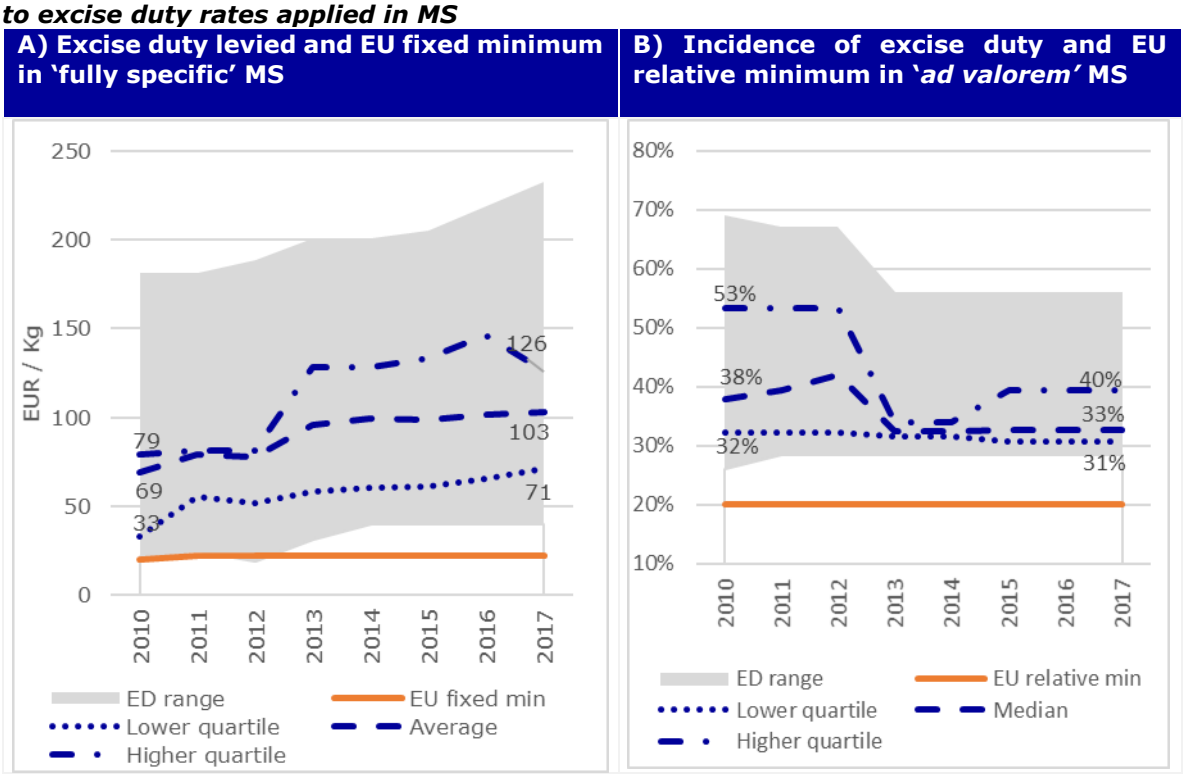
The EU minima arrangements for other smoking tobacco (OST) are in all respect equal to the ones described above for cigars and cigarillos. The MS who have not opted for a mixed structure regime ensure legal compliance with the EU requirements by setting the rates of the specific or ad valorem component above the EU fixed or relative minimum levels, respectively. Most countries having adopted a mixed structure regime have set one or both components rates above the corresponding EU minima. The only exception is DE, where compliance with EU minima is determined by the sum of the two excise components (and a MED set at the level of the minimum fixed amount).

The substantial irrelevance of the current EU minima for OST is clearly shown in Figure 4.6 below: both EU minima are well below the actual amount and incidence of the excise

[189] We have not used the 'number of compliant MS' as an indicator since throughout the period all MS have always been compliant with either of the two requirements.

levied in MS. In the case of fixed minimum, the gap with EU average has increased overtime, whereas for the relative minimum the gap has reduced in 2013, when EL, FR and PT abandoned their fully ad valorem regime, and has remained substantially stable since then.

Figure 4.6 – Relevance of the EU relative minima for other smoking tobacco with respect to excise duty rates applied in MS



Source: *Author's elaboration based on EDT.*
Legend: *Lower quartile / Median / Higher quartile= excise duty levied on OST in MS (in monetary terms (A) or incidence (B)) measured respectively at 25%, 50% and 75% percentiles; ED range= range (from minimum to maximum) of excise duty.*
Note: *The 'fully specific duty' countries are: BG, CY, CZ, DK, EE, EL, HR, HU, IE, LT, LV, MT, NL, RO, SE, SI, SK, UK. The 'ad valorem' countries are: AT, ES, IT (ES also applies a MED). The remaining countries (BE, DE, FI, FR, LU, PL, PT) apply a mixed structure.*

4.3.2 Relevance of the 'mixed structure' requirement

- **BACKGROUND**

The harmonisation of the excise duty structures is among the oldest measures adopted under the EU excise legislation. Since its origin, the EU rules have identified three types of possible excise duty structures for manufactured tobacco products, i.e. the 'specific structure' (i.e. a certain monetary sum per amount expressed in weight or units of product), the 'ad valorem structure' (i.e. a certain percentage of the retail selling price), and the 'mixed structure', which combines a specific and an ad valorem component. MS have been left free to choose which structure better fit with their needs and market conditions for all tobacco products except cigarettes, for which a ***mixed structure obligation*** has been established in the EU legislation. The rationale was summarised in the recitals of the early Directive 95/59/EC, which stated that: "*as regards cigarettes, the abovementioned objective* [i.e. competition not distorted by the effects of taxation and the opening of national markets of the MS, a.n.] *is best achieved by a system which provides for a degression in the incidence of the tax and whereas for this purpose, the*

tax imposed on these products should consist of a proportional excise duty combined with a specific excise duty".[190]

In establishing a mixed structure obligation, the EU legislation also introduced binding thresholds for the balance of excise components with the intent of fostering harmonisation in the structures applied across MS. In the 1995 version, the EU rules required the specific component to account for not less than 5% and not more than 75% of the total excise duty (i.e. the sum of the ad valorem and the specific components). This was presented as the first step of a harmonisation process that should have led to a progressive convergence between the lower and the upper thresholds. It is useful to note that the earlier versions of the tobacco excise legislation did not contain measures like the EU minima, so the harmonisation of structures was also aimed at supporting tobacco control policies, and in particular encouraging a greater reliance on the specific component, which was considered by public health stakeholders as more effective than other structures to reduce the affordability of cigarettes.

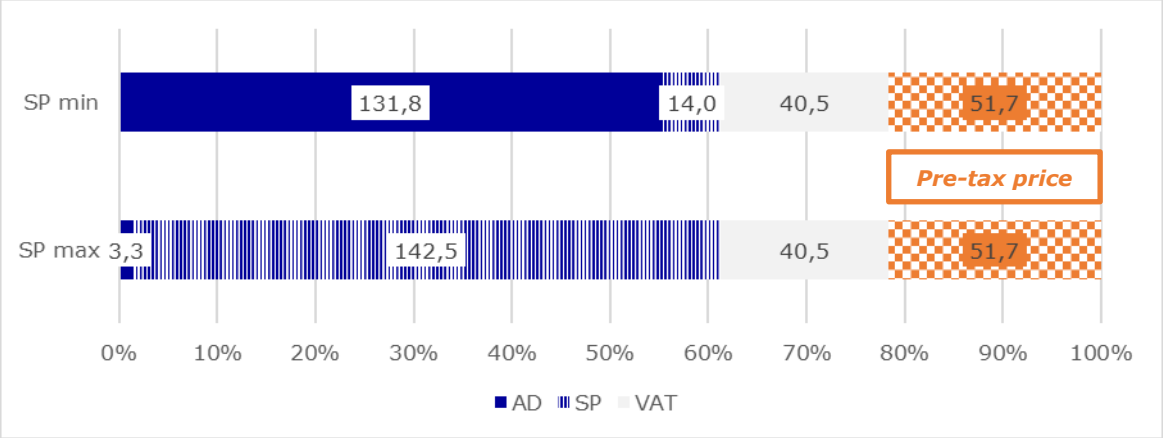
Actually, the planned convergence of lower and upper thresholds of the mixed structure made only limited progress overtime. The 1999 revision of the Directive narrowed the window, establishing a 5% to 55% range measured on the total tax burden (i.e. inclusive of VAT). But this measure was soon abandoned and the upper threshold was increased again to 76.5%.[191] This value is still valid today, while the lower threshold was only moderately increased from 5% to 7.5% under the current Directive, starting from 2014.

- **RELEVANCE OF CURRENT THRESHOLDS**

To assess the relevance of the mixed structure requirement it can be useful to examine in the first place its concrete implications for the setting of excise structures at MS level. As shown in Figure 4.7 below, when compared to the retail price of cigarettes, the admissible variance in the respective incidence of the two excise components is huge in all respects: at its minimum (7.5% of the total tax burden), the specific component can account for less than 6% of the retail selling price (measured at EU average WAP level), while when the specific component is at its maximum (76.5%) the ad valorem component can be less than 1.5% of the retail selling price (at WAP). In other words, under the current situation there is an almost negligible difference between the very flexible 'mixed structure' regimes allowed and a 'fully' specific or 'ad valorem' regime. In this sense, the current measures seem poorly aligned and relevant with the objective of a greater harmonisation of excise structures for cigarettes.

[190] Directive 95/59/EC recital (5).
[191] A possible explanation is provided in the Commission Staff Working Document accompanying the proposal for a revision of the Directive SEC(2008), where giving '*more flexibility to Member States as concerns the relation between specific and ad valorem duty*' seemed needed to balance the effects of the proposed tightening of EU minima levels.

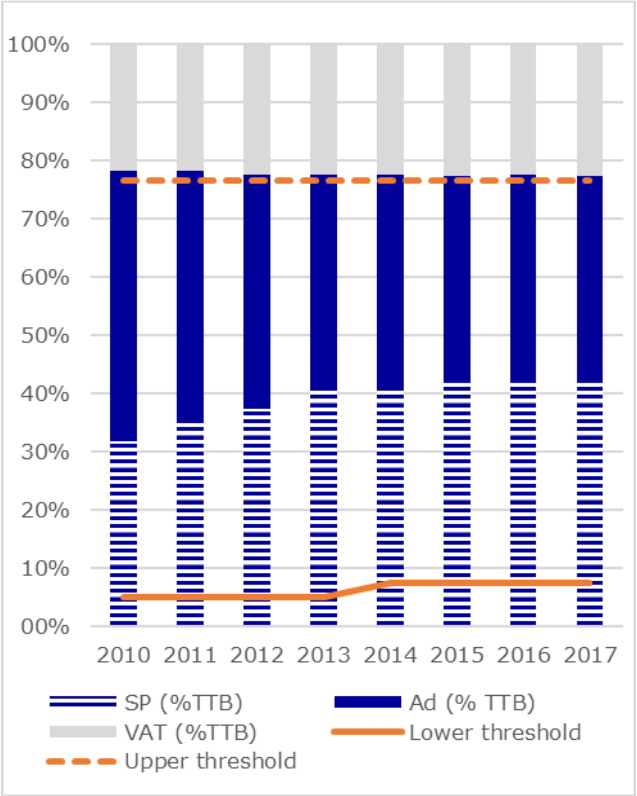
Figure 4.7 – Range of allowed variation in the balance of ad valorem and specific component, in a hypothetical EU average scenario



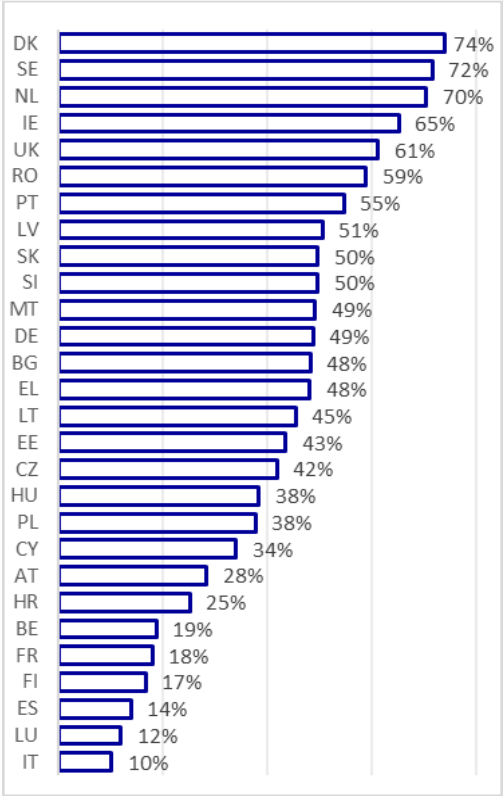
Source: *Author's elaboration based on EDT.*
Legend: *SP min = specific component at 7.5% of the total tax burden, SP max = specific component at 76.5% of the total tax burden, AD = ad valorem component, VAT = value added tax.*
Notes: *Simulation based on 2016 EU average figures: WAP= € 238 per 1000 cigarettes, VAT=17% of retail selling price, and excise duty yield= € 146 per 1000 cigarettes. The difference between the WAP and the total tax burden can be conventionally assumed as the pre-tax price, inclusive of production and distribution costs and of manufacturers' margins.*

Figure 4.8 – Incidence of excise duty components in MS and the mixed structure

A) Average incidence of tax components (2010-17)



B) Incidence of the specific component on the total tax burden in MS (2017)



Source: *Author's elaboration based on EDT figures.*
Legend: *SP = specific component, AD = ad valorem component, VAT = value added tax, TTB = total tax burden.*

Most MS have actually opted for a relatively balanced regime (see Figure 4.8.B above), and the overtime ***trends in the incidence of specific and ad valorem component*** seem largely unrelated to the thresholds imposed by the EU legislation (Figure 4.8.A).

Still, in a few MS there persists a highly skewed regime, either toward the specific component (e.g. DK, SE and NL) or the ad valorem component (IT, LU, and ES). For these countries the current EU thresholds are indeed relevant since even small changes in thresholds may imply reviewing national rates. In the past, the resistance of various MS with highly skewed regimes has seemingly been the main obstacle to a faster and more ambitious harmonisation.

Finally, it should be remarked how the mixed structure provision has lost a significant part of its relevance due to the other, more pervasive, provisions, and in particular:

- EU minimum rates – overtime these have become the most effective policy instrument to drive harmonisation/convergence in tax levels between low-tax and high-tax countries;
- minimum excise duty (MED) – although not a mandatory provision, most of MS have adopted this mechanism to better modulate their tax policies across price categories of products. The application of MED has possibly contributed more than excise components to shape price levels and distribution in national markets.

4.3.3 Relevance of tax categories – novel products

As far as ***conventional tobacco products*** are concerned, the four traditional excise categories are well-aligned to stakeholders' need. Some possible revisions had been assessed under the previous EA 2018 study but the outcomes suggested that the proposed reforms were poorly justified or enforceable and/or displayed an unconvincing costs/benefits balance. Specifically, this was the case with (1) differentiating between 'roll-your-own' and 'make-your-own' FCT; (2) differentiating between 'borderline' cigarillos and other 'genuine' cigars and cigarillos; (3) creating a new tax category for raw tobacco (mainly for monitoring purposes); and (4) separating 'water-pipe tobacco' from other smoking tobacco.[192] In a few instances, the EA 2018 suggested to revise and improve the robustness of certain definitions, such as the 'smoking tobacco' and 'tobacco refuse' definitions under Article 5.1, or the definition of cigarillos (Art 4.1), and to conduct a closer examination of the illicit trade of water-pipe tobacco, but the overall classification system was not a stake.

A partly different situation is that of ***novel products***, and namely heated tobacco products (HTP) and e-cigarettes. These products are not explicitly covered by Directive 2011/64 since they appeared on the market in more recent years but, as seen, they are in the scope of the TPD2. Furthermore, they cannot be dismissed as 'niche' products since their market size and their development potential are significant. So, various Member States have started introducing non-harmonised excise categories or extending the interpretation of the existing categories to subsume novel products in the excise system. It is important to underline that the main justification underpinning national taxes concerns market functioning and control, including the need to prevent tax-induced substitution with conventional products and related loss of tax revenues. Instead, the perceived public health profile of novel products was seldom behind Member States decisions to tax or not novel products.[193] These arguments have soon become controversial across the EU and globally, due to the substantial disparity of views among public health experts of their inherent risk and smoking cessation potential.[194] The public

[192] See: EA 2018 for an extensive analysis of these issues and the conclusions of the impact analysis. The outcomes of that study have been largely adopted by the Commission in its 2018 Report (COM(2018) 17 final).
[193] As concerns e-cigarettes, this is the least frequently mentioned reason for taxing (important in only three countries) or for non-taxing (only one country is against taxation based on reduced risk considerations. For HTP, only four countries mentioned its less harmful character as a relevant fiscal argument.
[194] This polarisation can be illustrated by two of the most notable publications on this subject appeared in recent years. In the UK, the Royal College of Physicians and Public Health England have published extensive evidence reviews of both the intrinsic safety of e-cigarettes (for vapers and by-standers) and their value as a stop-

health dimension falls outside the scope of the current Study, nonetheless it is useful to remark that the absence of a uniform position at the international level is paralleled by the lack of conclusive evidence. This issue was raised in the first WHO Report on these products adopted by the FCTC Conference of Parties at end 2016[195], and reinforced in the latest round of discussion (October 2018), where the decisions were taken (1) to commission an independent, comprehensive scientific report on novel and emerging tobacco products, in particular HTP,[196] and (2) to explore with the International Agency for Research on Cancer (IARC) the possibility to prepare a monograph on the evidence around the health effects and policy impact of ENDS (electronic nicotine delivery systems), to help reaching international scientific consensus.[197]

So, leaving aside public health considerations that pertain to the competent entities, it remains that – as emerged from the EA 2018 study - the various national tax regimes have had the unintended effect of fragmenting the Single Market. In particular, as the stakeholders' consultations confirmed, national taxes have created obstacles to market integration, affected the competitiveness of domestic operators, and created incentives for tax avoidance practices. These issues - described in greater details below – indicate that the ***tax categories envisaged for manufactured tobacco products are no longer fit for purpose***, in the light of the challenges posed by novel products, and may require a revision. The possibility of revising the current arrangements and introducing harmonised tax categories is also in line with the request expressed by the majority of MS authorities.

- **HEATED TOBACCO PRODUCTS**

Heated tobacco products were not on the market (beside some early prototypes) when the Directive was adopted, so they are not explicitly covered and their status remains uncertain. As shown in Section 3.4.2, MS have developed different views on whether HTP could be considered an excisable product or not and, in case, which excise category is applicable. Some of the initial approaches in this respect were later superseded also in relation to certain changes in the characteristics and design of products (e.g. by the addition of an aluminium foil wrapping the filler to prevent HTP sticks could be smoked as normal cigarettes). Then, the appearance of HTP sold in small 'pods' instead of sticks,

smoking tool, in particular: Tobacco Advisory Group of the Royal College of Physicians, "Nicotine without smoke: tobacco harm reduction", Royal College of Physicians, 2016; McNeill et al., "E-cigarettes: an evidence update", Public Health England, 2015. On the other hand, the U.S. Department of Health and Human Services pointed out that e-cigarette's aerosol is not harmless, and that e-cigarettes use among youth and young adults may pose a public health concern. U.S. Department of Health and Human Services. "E-Cigarette Use among Youth and Young Adults". A Report of the Surgeon General, 2016.

[195] "*If the great majority of tobacco smokers who are unable or unwilling to quit would switch without delay to using an alternative source of nicotine with lower health risks, and eventually stop using it, this would represent a significant contemporary public health achievement. This would only be the case if the recruitment of minors and non-smokers into the nicotine-dependent population is no higher than it is for smoking, and eventually decreases to zero. Whether ENDS/ENNDS can do this job is still a subject of debate between those who want their use to be swiftly encouraged and endorsed on the basis of available evidence, and others who urge caution given the existing scientific uncertainties as well as the performance variability of products and the diversity of user behaviour*". WHO Report to FCTC COP (2016).

The Report also encouraged MS authorities may to apply the precaution principle and decide to tax these products so as to make them less affordable to minors and deter the use in this age group: "*In parallel, combustible tobacco products should be taxed at a higher level than ENDS/ENNDS to deter initiation and reduce regression to smoking*" http://www.who.int/fctc/cop/cop7/FCTC_COP7_9_EN.pdf?ua=1

[196] Such report should regard "*their health impacts including on non-users, their addictive potential, perception and use, attractiveness, potential role in initiating and quitting smoking, marketing including promotional strategies and impacts, claims of reduced harm, variability of products, regulatory experience and monitoring of Parties, impact on tobacco control efforts and research gaps, and to subsequently propose potential policy options".* DECISION FCTC/COP8(22) Novel and emerging tobacco products, 6 October 2018.

[197] FCTC/COP/8/10, Progress report on regulatory and market developments on electronic nicotine delivery systems (ENDS) and electronic non-nicotine delivery systems (ENNDS). Report by the Convention Secretariat, 27 June 2018.

and of hybrid products containing also a flavoured liquid for vaporisation, made a uniform classification of HTP even more complex.

By the beginning of 2018, HTP has been introduced in 18 MS[198], so more and more tax authorities have been called to decide which tax regime to apply. As seen, the level of fragmentation is high, and MS approaches can be substantially divided into three groups:

- MS classifying HTP as ***other smoking tobacco*** (OST) and taxing it consistently. ten MS have adopted this approach, of which seven where HTP is commercialised (DK, LT, NL, UK, DE, ES, FR) and three where HTP is not (yet) on the market (SE, EE, BE). Reportedly, this approach was adopted primarily for a pragmatic reason, that is to have HTP moved (and controlled) under the EMCS system. In the initial phases, some MS considered also the assimilation to the ordinary cigarettes' category, but this was dropped following the abovementioned modification of product characteristics and, possibly, for consistency with the customs classification, which places HTP in the residual 'other/other' category (CN 2403 99 90).[199]
- MS that established an ***ad hoc non-harmonised category*** for HTP. Some 13 MS overall have opted for this approach, generally arguing that the all excise categories refer to smoking tobacco products and do not match with HTP characteristics. Within this group, there are further differences in tax treatment: for instance, Italy has adopted a product-specific approach by establishing an equivalence of time consumption to conventional cigarettes under the same puffing conditions (and applying a 50% reduction); others (like PT and HR) apply de facto the same tax rate of OST although HTP is formally not considered a harmonised product; various countries (e.g. SI, IT) allow the use of EMCS to monitor the movements of HTP, although non-harmonised products should be in principle excluded.
- A few countries, like IE, FI, MT and LU, have reportedly ***not decided yet*** (HTP was not yet commercialised in their territories at the time of the research).

The legal fragmentation caused by the proliferation of approaches across the EU is a source of actual and potential issues for market functioning and excise duty administration. For this reason, none of the MS authorities consulted expressed satisfaction for the current situation, and all of them would support an EU-level harmonisation of tax regimes. In particular, some 8 in 10 countries consider ***the current classification system as inadequate and not in line with their policy needs***, and require the creation of a new tax category for HTP.

In line with the conclusions of the EA 2018 study, the main problems of the current situation can be summarised as follows:

- ***Legal and administrative uncertainty***. The disparities of interpretation and approach may cause administrative issues in the cross-border movement of products, especially when these are moved across countries that have different views on its inclusion in the EMCS system. Reportedly, ad hoc administrative arrangements had to be established on a case-by-case basis to allow the circulation of HTP between certain MS. The different approaches may also translate into disparities of treatment and, although so far no specific case is reported, it is possible that in the future this may cause disputes and legal cases.
- ***Single Market functioning***. The consequence of the above situation is possibly represented by delays and limitations in the circulation and commercialisation of HTP in the Single Market. Additionally, the lack of a proper monitoring system may reduce authorities' capacity to detect and prevent fraudulent cross-border trade and the emergence of 'borderline' products. Finally, the non-inclusion of HTP from the scope

[198] In addition to the 17 MS listed in Section 3.4.2, in 2018 HTP has been introduced in Bulgaria.
[199] There are also Binding Tariff Information (BTI) concerning HTP that confirm its classification as CN 2403 99 90.

of the excise legislation might also pose issues of competition with other tobacco products that are subject to the excise regime.

- ***Unintended effects on other products***. The inclusion of HTP in the OST category by certain MS, avoid the above issues but have other downsides, and in particular the unintended effects on the taxation of other products falling into this category. In fact, tax authorities could not disentangle the regime applied to HTP and the other products in this category, such as pipe tobacco, and this may constraint their freedom to pursue specific policy objectives. In simple terms, the optimal tax rate for HTP may not be the optimal rate of pipe tobacco, so whichever solution one MS adopts, one of the two sub-categories may result subject to a regime that was conceived for another product.

➢ **E-CIGARETTES**

As discussed, some 13 MS in the EU have established an ad hoc tax regime on e-cigarettes (see Figure 3.27 in Section 3), but the remainder are not against such option. On the opposite, they are rather in favour of the taxation of e-cigarettes[200] but call for a EU-level harmonised approach instead of MS-level solutions. Only two EU countries of those who took part to the consultation (24 MS) believe the Commission should refrain from legislative intervention in this area and/or should intervene through non-binding measures only (such as guidelines). The market and legal fragmentation caused by national tax regimes have various adverse consequences for both operators and authorities, as outlined below.

- ***Competition issues***. Heavy tax rates in some MS have caused a price shock[201] that severely hampered the competitiveness of domestic manufacturers *vis-à-vis* foreign players. In principle, foreign operators selling their products in these countries should be subject to the same tax regime as domestic ones, however poorly controlled cross-border online sales and cross-border 'bootlegging' allow to easily circumvent national taxes, creating an unfair competitive environment for domestic operators. In addition to the tax charge, national tax regimes also imposed extra administrative and compliance costs that especially small businesses found difficult to cope with (e.g. registering, establishing tax warehouses, anticipating the excise at the import stage, buying tax stamps etc.) and led to price increases. As many consumers turned to cross-border online purchasing to avoid taxes, a high share of physical outlets closed down. Inevitably, the national regulations also raised barriers to the EU market integration. Foreign operators have to register as taxpayers (and undertake the administrative burden) if they want to operate in countries that have adopted an excise on e-cigarettes.
- ***Tax enforcement issues and fraud***. Since e-cigarettes fall outside the EU excise system, MS are deprived of the facilities that are efficiently used to monitor and control conventional tobacco products. For their intrinsic characteristics e-liquids are much easier than tobacco products to move across the borders elusively, and customs authorities have limited technical means to control small shipments effectuated through ordinary courier delivery services and/or to perform tests on anonymous liquids to determine their nature. The investments required to properly enforce national regulation would be significant, and various MS may prefer not to divert resources from the fight against tobacco smuggling to the control of e-liquids. This has reportedly created a breeding ground for 'bad players' and illicit practices (also detrimental to 'good players' competitiveness).
- ***Tax revenue loss***. The above difficulty of enforcing a tax regime in the absence of a common EU framework, compounded with the obvious reduction of the demand due

[200] In this Report any reference to the taxation of e-cigarettes should be intended as referred to the consumable part (refill containers, disposable products etc.) and never to the device.
[201] In Portugal the industry estimates that taxes led to a retail price increase of nearly 150%; in Italy was about 60%. In Hungary some stakeholders estimated a 100-150% increase in 2017.

to increasing prices (and in some cases legal uncertainties), inevitably affected the amount of tax receipts collected, as reported by tax authorities themselves.
- ***Legal Certainty***. The absence of a clear orientation and the disparities of treatments across MS may fuel also a fragmented jurisprudence, which may hinder subsequent attempts to harmonise rules across the EU.

On the other hand, the case for a separate tax category for e-cigarettes is not so straightforward. For this reason, the judgment on the relevance of the current classification with respect to e-cigarettes is more nuanced. In particular, there are some specific features of e-cigarettes to be carefully considered:

- First of all, the ***heterogeneity of e-cigarettes products*** and the difficult comparison with manufactured tobacco, as it is defined in the Directive. E-cigarettes have evolved overtime from products clearly resembling cigarettes - e.g. the so-called cig-a-like, which could be somehow arguably presented as substitute products for conventional cigarettes - to 'vaping' system that have little in common with cigarettes and tobacco products. Furthermore, not all the liquids used with electronic cigarettes contain nicotine, and not all the nicotine used is extracted from tobacco (synthetic nicotine is increasingly used).[202] Then, market analyses suggest that the tobacco flavour represents a small share of market sales. Furthermore, the technological development is rapidly changing the nature of products and the consumption modalities, challenging any attempt to draw a consumption-based 'equivalence' between e-cigarettes and conventional tobacco products. In this respect, it is useful to remark: (1) the increased power and efficiency of new devices, which consume liquids much more rapidly but also increase the delivery of nicotine, thereby allowing to use liquids with much lower concentrations of nicotine; (2) the new 'delivery platforms' being developed and, sometimes, already on the market (e.g. nicotine salts, vaping gels etc.), which may challenge in perspective any definition and categorisation of the consumable substrate; and (3) the recent uptake of e-liquids containing cannabidiol (CBD), which poses regulatory questions that go well beyond tobacco excise issues.
- The second overarching question is whether there is ***sufficient justification*** to harmonise the excisability of these products at EU-level considering that there are disparities of views among EU countries and that the performance of national taxes has generally been suboptimal. Overall, there are two main 'proportionality' issues to consider: (1) the possible undesirable 'distributional' effects of harmonisation, which would require certain MS to set up tax regimes also where the e-cigarettes market is a small and/or non-problematic, and (2) the general concern on the enforceability of a tax regime on e-cigarettes, since liquids (and especially pure nicotine) can be easily traded across the border eluding controls.
- Finally, as anticipated, there is ***non-conclusive evidence*** supporting the taxation of e-cigarettes for public health purposes. As discussed, if on the one hand an increasing number of public health experts and authorities acknowledge their potential as smoke quitting aids on the other hand there remains claims that e-cigarettes could be a threat for youth - both as inherently harmful and as a gateway to nicotine and tobacco addiction.[203] Considering that most of e-cigarettes users are either former smokers or dual users, it seems important to carefully weigh the risk that a tax-driven reduced demand for e-cigarettes lead to a slow-down of smoking cessations.

[202] For the characterization of liquids used in e-cigarettes, see the experimental study commissioned by DG TAXUD to the JRC: Wenzl, T.; Zelinkova, Z.; Regueiro, J.; Giri, A., *Scientific-technical support activities to DG TAXUD-C-2 on the option to include e-cigarettes within the scope of excisable goods for the Impact Assessment on a possible revision of Directive 2011/64/EU*, EUR 29062 EN, 2017.
[203] As the Eurobarometer data show only some 1% of e-cigarettes users do not and did never smoke.

4.3.4 Relevance to Member States policy objectives and needs

➢ **OVERALL ALIGNMENT WITH MS OBJECTIVES**

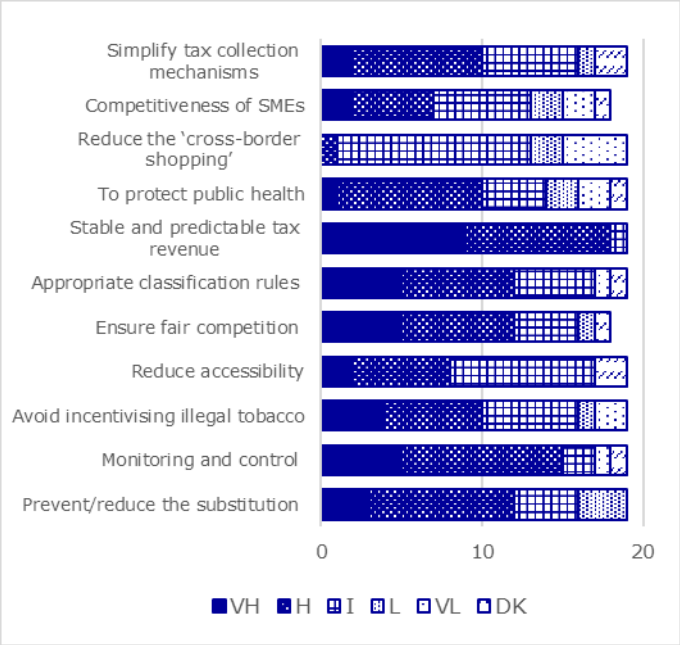
To estimate the overall relevance of EU excise legislation for MS it is useful to compare its objectives with the objectives that underpinned MS tax policy in the period considered (2011-17) and those that will underpin national policies in the next period (2018-23). The analysis is based on the result of the consultation of tax authorities and their feedbacks on a set of possible policy objectives, as summarised in Figure 4.9 below. The main outcomes are as follows:

- By far the most important aim of national tax policies is to maintain a ***stable and predictable tax revenue***, which means preventing and tackling disruptions or fluctuations in tax receipts due to factors like: illicit trade, substitution across products, 'borderline' products, 'price wars' and the like. This objective is set to remain of primary importance also over the next five years. It is therefore peculiar that such objectives are not explicitly considered or mentioned in the EU excise legislation (although arguably some EU provisions may contribute to it). Tightly connected to this is the aim of ensuring and effective ***monitoring and control*** of tax compliance, which is the second highest ranking objective for MS. The Directive is consistent with it, although most of the EU policy measures in this area fall in the remit of the antifraud policy. Coherently, MS attributes a much lower importance to the risk that strong tax measures may push consumers to ***illicit products***, as if this was primarily considered an enforcement problem.
- The following items in MS ranking relate to proper market functioning, namely: to ***ensure fair competition*** among operators at national level, and to enforce ***classification rules*** to avoid 'borderline' products. It is expected that the former – which is at the centre of the EU excise legislation – will moderately lose importance in the next period, in favour of other objectives, while the latter will maintain its importance, possibly in relation to the reported growing trade of 'bulk tobacco' for smoking. Implicitly, this may suggest a demand for fixing certain definitions in the Directive that are no longer suitable. Preventing and reducing the ***substitution*** of more-taxed products with less-taxed one is considered of moderate importance and its status is not going to change. In the Directive, this objective is explicitly mentioned for FCT only.
- ***Public health-related objectives*** rank below average by importance, although in perspective they are expected to count more, so we can expect a progressive greater alignment with the Directive's aim (and more generally with FCTC objectives). In this area, to reduce accessibility – i.e. avoid that very low-priced products are placed on the market – is considered more important than the general public health protection aim.
- The least important, in relative terms, among the possible objectives tested is actually one of the main objectives of the EU legislation, that is ***reducing the tax differential*** between MS (the 'convergence' objective) to mitigate cross-border shopping (and illicit reselling). This item is expected to remain of limited importance also in the near future. The same applies to the safeguarding of the ***competitiveness of SMEs,*** but unsurprisingly the positions of MS on this item are quite polarised, since not all countries have a well-established SME tobacco industry.

In the commentaries to the consultation questionnaires some MS specified other relevant objectives for the near future. These regarded again the need to harmonise ***the treatment of novel products*** and the fixing the problematic aspects of the definition of 'smoking tobacco'. Outside the remit of the Directive, some MS also mentioned the strengthening of tobacco control and antifraud enforcement policies among the main planned objectives.

Figure 4.9 – The objectives underlying tobacco tax policy in MS

A) Rating by importance in 2011-17



B) Comparison between 2011-17 and the prospective 2018-23 period (average ratings) *

	2011-2017	2018-2023
Prevent/reduce the substitution	3.63	3.63
Monitoring and control	4.00	4.17
Avoid incentivising illegal tobacco	3.47	3.53
Reduce accessibility	3.59	3.65
Ensure fair competition	3.94	3.78
Appropriate classification rules	3.83	3.89
Stable and predictable tax revenue	4.42	4.47
Protect public health	3.28	3.61
Reduce the 'cross-border shopping'	2.53	2.53
Competitiveness of SMEs	3.18	3.22
Simplify tax collection mechanisms	3.65	3.88

Source: *Author's **c**onsultation of MS tax authorities (24 respondents).*
Legend: *VH=very high, H=high, I=intermediate, L=low, VL=very low.*
Note: *(*) average ratings in figure B are expressed on a 1-5 scale, where 1=very low and 5=very high.*

- **RELEVANCE TO PUBLIC HEALTH OBJECTIVES**

The recitals of the Directive clearly state that one of its objectives is to ensure a high level of health protection. The statement is however primarily a declaration of principle, since it is not supported by any quantification of targets or benchmark or reference to external policies articulating such objective in greater details.[204] More specifically, a public health rationale is invoked for three specific provisions, and namely:

1. the establishment of the WAP as a benchmark for reference in calculating excise duties to avoid the risk of manipulative market practices that the previous MPPC benchmark was prone to;
2. the minimum excise rates as mechanisms for promoting convergence between prices and excise rates at the EU level, as explicitly stated in the recitals 13 and 16 of the Directive itself;
3. finally, the need to bring these minimum levels for fine-cut tobacco closer to the minimum levels applicable to cigarettes - a rationale already mentioned back in 2002.

However, in the same recitals it is also stated that these public health objectives have to be pursued while at the same time ensuring the proper functioning of the internal market, which prominently includes the freedom for the manufacturer of setting the maximum retail selling price. This basic principle is actually reiterated further when the Directive declares the imperative needs of competition imply a system of freely formed prices for all manufactured tobacco products. As a consequence, any direct/indirect mandatory price system imposed on manufacturers or importers for public health reasons would not

[204] An implicit objective of a 10% reduction in smoking prevalence was mentioned in some preparatory documents and even appeared in the DG TAXUD website at that time but never entered into official policy documents.

be compatible with the Directive, as also confirmed also by the CJEU jurisprudence (see Table 4.1). There are two main areas where the public health objectives of the Directive inevitably clash with the parallel need to ensure a proper functioning of the internal market and avoid market disruptions:

- to public health practitioners any reduction in the range of tobacco product retail prices is a valuable public health objective but it can be argued that extreme tax-driven price compression may unduly affect competition between products belonging to the same group;
- in the public health literature, it is often considered good for public health purposes to raise taxes (hence prices) by means of so-called tax shocks, i.e. sudden massive increases, while this is generally considered disruptive for market functioning including by various MS authorities, so also the Directive envisages staged increases and transitional periods.

It is worth mentioning that while there is overwhelming literature confirming that the reduction in the range of prices[205], price shocks and approximation of taxation of fine-cut tobacco with manufactured cigarettes are valuable public health objectives, the status of convergence as a health objective is more peculiar. This is because there is public health literature downplaying any major correlation of taxation and prices with increasing illicit trade and consumption[206]. It has generally been acknowledged by interviewees that there is a relative paucity of public health studies investigating in more detail the effects of cross-border flows and the majority of those reported in the literature have been carried out in the US. Public health experts themselves usually agree that the effects of convergence or the lack thereof on public health in the EU is possibly one of the most under-investigated areas to date and that little is known about how this translates into detectible health outcomes in the countries more seriously affected. Most of the literature available is survey-based, as shown in the Box 4.2 below, which summarises some of the most interesting findings from these studies and their implications for public health purposes.

Box 4.2 - The Public Health consequences of tax differentials in the literature

In 2000 Yurekli and Zhang,[207] both World Bank economists, while reviewing the impact of tax increases in some US States concluded that tax differentials gave rise to both short-distance cross-border 'smuggling' between neighbouring states and long-distance partly legal 'smuggling' from low-taxation ones. Smuggling from tax free zones and enclaves, however, was not found significant in the US at that time. The authors concluded that the magnitude of the problem could increase if the tax differentials among the states would continue to increase and that long-distance smuggling and bootlegging had the potential to offset the expected impact of increased taxes on the demand of cigarettes. Only tax harmonisation among states would eliminate the economic incentive of smuggling, so the authors concluded that this should be a policy priority also from a public health perspective.

The above results confirmed the earlier conclusions of Chaloupka and Saffer[208] that US States with higher prices lose sales volume to states with lower prices, and that both the short distance variable and the long-distance smuggling variable are significant. The need to specifically examine both long distance smuggling and short distance cross-border sales to distinguish per capita sales from per capita consumption had already been

[205] In a notable recently appeared study a correlation was demonstrated between the range of prices and infant mortality from cigarette smoking across the EU. See Filippidis FT, Laverty AA, Hone T, Been JV, Millett C. *Association of Cigarette Price Differentials with Infant Mortality in 23 European Union countries*. JAMA Pediatr. 2017;171(11):1100–1106. doi:10.1001/jamapediatrics.2017.2536

[206] See among others Joossens, L., Lugo, A., La Vecchia, C., Gilmore, A. B., Clancy, L., & Gallus, S. (2014). *Illicit Cigarettes and Hand-Rolled Tobacco in 18 European countries: A Cross-Sectional Survey*. Tobacco Control, 23(0), e17–e23. http://doi.org/10.1136/tobaccocontrol-2012-050644 reporting the results of the EU-funded PPACTE project.

[207] Ayda A. and A Yurekli, *The Impact of Clean Indoor-Air Laws and Cigarette Smuggling on Demand for Cigarettes: An Empirical Model*, Health Econ. 9: 159–170 (2000).

[208] F. J. Chaloupka, H. Saffer, *Clean Indoor Air Laws and the Demand for Cigarettes*, Contemporary Policy Issues, April 1992

identified by Becker, Grossman and Murphy in their seminal paper on the empirical analysis of cigarette addiction through econometric means.[209]

At the EU level, in 2015 Agaku, Blecher, Filippidis[210] and others elaborated the findings of the 2012 Eurobarometer survey results - which showed that some 10% of EU smokers relied on cross-border purchases (with peaks as high as 18% in FR[211], 20% in AT and 21% in DK), and some 14% of them relied on this source for over 50% of their consumption. They found a significant correlation between the cigarette price differential between countries and the likelihood that a cross-border tobacco purchase was reported and the relevance of sociodemographic aspects such as older age and higher levels of education as explanatory factors. Eurobarometer data highlighted how the four countries with the highest prevalence of cross-border tobacco purchasing bordered with at least one country with price levels (measured as the MPPC) 25% lower or more, thereby showing a strong short-distance cross border dimension. This confirmed previous findings[212] that cross-border cigarette purchasing is more common in European regions bordering countries with lower cigarette prices and is more often reported by smokers with higher education and income. The authors concluded that there is need for stronger efforts to level cigarette prices between MS in order to strengthen tobacco control efforts and called for a stricter enforcement on the number of cigarette packs (or grams of tobacco) that it is possible to carry from one MS to another.

Also Stoklosa in a paper published online in December 2018,[213] concludes that increases in minimum tobacco tax rates resulting in higher cigarette prices and in convergence of those prices across the Member States would reduce cross-border cigarette purchasing, thereby improving public health by contributing to the decline in cigarette consumption. The author, however, acknowledges that the small value of these distortive effects suggests that the part of variation in tax-paid sales that can be explained by cross-border purchasing incentives is not large. Moreover, the difference found in his model between incentives to export and incentives to import could mean that some of the cigarettes purchased from across the border are smoked in addition to domestic duty-paid cigarettes, as opposed to being substitutes for domestic cigarettes. Thus, increasing cigarette taxes to reduce price differences between countries would curb tobacco use in two ways: first, through the effects of price increases on cigarette consumption alone and, second, through reduced cross-border purchasing. Another interesting finding of this study is that patterns in cross-border cigarette purchasing would differ by border type. The sea generally poses a barrier for cross-border purchasing in terms of both cost and time, which makes for instance that British Isles are more shielded against cross-border flows than other EU MS.

As regards stakeholders' perceptions on the relevance of the Directive for public health needs, various experts and NGOs have cast doubts that the current provisions (i.e. the minimum rates) could be ever conducive to any real harmonisation of prices across the EU and therefore called for a fresh rethinking of the tools available to this aim. A notable proposal to this aim is that of tying domestic tax policies to the general fiscal stance in the whole EU, for instance, by dynamically linking the minimum excise levels to the trend of the EU Level Weighted Average Price, defined as the volume-weighted average of the domestic WAP of Member States.[214] Another area frequently voiced as not sufficiently in line with the needs of the public health community is the lack of any explicit quantifiable public heath objective in the Directive, particularly in the light of the fact that these are now available under the FCTC and could therefore serve as reference benchmarks.

This limited satisfaction is reflected in the results of the consultation of MS public health authorities (see Table 4.4 below), with some half of respondents considering the measures envisaged in the Directive as not relevant enough for the achievement of public health objectives. The main reasons include: (1) the lack of a mechanism to index tax levels to

[209] G. S. Becker; M. Grossman; K. M. Murphy, *An Empirical Analysis of Cigarette Addiction*, The American Economic Review, Vol. 84, No. 3. (Jun., 1994), pp. 396-418.
[210] Agaku IT, Blecher E, Filippidis FT, et al. *Impact of cigarette price differences across the entire European Union on cross-border purchase of tobacco products among adult cigarette smokers* Tobacco Control March 2015.
[211] The Eurobarometer figure for France is in line with previous estimates covering the 1999-06 period, which attributed to cross-border shopping and smuggling of tobacco between 14% and 20% of total sales (depending on the calculation method used). Lakhdar CB *Quantitative and qualitative estimates of cross-border tobacco shopping and tobacco smuggling in France*, Tobacco Control 2008;17:12-16
[212] Nagelhout GE, Van den Putte B, Allwright S, et al. *Socioeconomic and country variations in cross-border cigarette purchasing as tobacco tax avoidance strategy. Findings from the ITC Europe surveys*. Tobacco Control 2014;23:30–8.
[213] M. Stoklosa, *Prices and cross-border cigarette purchases in the EU: evidence from demand modelling,* forthcoming, Tobacco Control Published Online First: 13 December 2018.
[214] Source: Smoke Free Partnership Position Paper on the revision of the Council Directive 2011/64/EU regarding Excises Duties for Tobacco Products. Paper presented at the SFP workshop in Sofia in May 2018.

income growth; (2) an insufficient protection from tax-induced product substitution, and (3) the fact that public health objectives are not spelled out with sufficient clarity. The qualitative comments accompanying authorities' ratings mentioned again the lack of appropriate instruments to support a real harmonisation of tax (hence prices) across the EU and to the persistence of excessive price gaps between countries, undermining the effectiveness of tobacco control policies at the national level.

Table 4.4 – Public health authorities' satisfaction with the relevance of the objectives and measures laid-down in the Directive

	Very high	High	Intermediate	Low	Very low	Don't know
Effectiveness in reinforcing public health protection in Member States	0	1	9	3	0	2
Clarity of EU excise legislation objectives on public health protection	0	1	6	5	2	0
Relevance of the specific measures laid down in the EU excise legislation with its general health objectives	0	1	6	5	1	2

Source: *Targeted consultation of public health authorities (15 respondents).*

RELEVANCE - SUMMARY OF KEY FINDINGS

1. The relevance of the EU minima laid down in the Directive has diminished overtime. In perspective, and with limited exceptions, they can no longer drive up the price of tobacco products in Member States to a sufficient extent.
2. The EU provisions for the harmonisation of the excise structures for cigarettes are unfit to achieve any relevant impact. The underlying policy objective should be reconsidered in the first place, since it might no longer be a priority for the future.
3. The tax categories envisaged in the Directive for conventional tobacco products reflect well the need for a proper functioning of the market and competition. Conversely, the excise legislation is lacking a proper definition and classification of heated tobacco products and e-cigarettes.
4. In general, the objectives of the Directive are well-aligned with the needs of national tax authorities but more emphasis should be given to ensuring the stability and predictability of tax revenues and the connected issue of monitoring and control.
5. Public health stakeholders demand more support to tobacco control from fiscal policies and the adoption of clear targets in this respect.

4.4 Effectiveness

4.4.1 Internal Market functioning

4.4.1.1 The harmonisation of tax regimes across MS

- **EU MINIMA AND CONVERGENCE IN TAX LEVELS**

The ***EU minima had heterogenous impacts*** across MS depending on countries' own tax and market conditions. As shown in Section 4.3 (relevance), only a minority of MS (five, on average) were falling below the fixed minimum threshold for cigarettes throughout the period considered. A larger number (ten on average) was falling below the EU relative minimum but most of them were exempted through the 'escape clause' mechanisms, or the transitional period derogation. The EU minima for other tobacco products resulted even less relevant for the majority of EU countries, and by consequence also their effectiveness was limited. To sum up, to assess the effectiveness of EU minima on MS tax levels we need to differentiate between MS with medium/high tax levels, where EU minima had no substantial effect, and low-taxing countries, which instead had to significantly increase their rates to meet the Directive's requirements.

The trajectories in excise duty levels applied to cigarettes in MS that were directly concerned by EU minima requirements are shown in the Figure 4.10 below. It emerges clearly, that while the EU fixed minima had a consistent effect on the excise duty levied on the lowest price category of cigarettes, the EU relative minimum did not result in a coherent upward trend of the excise duty incidence at WAP. One plausible explanation is that the minimum incidence is more difficult to control by MS authorities, since price levels change constantly, often in an iterative relation with tax levels trends, and cannot be entirely predicted, since manufacturers are free to delay, absorb, or magnify the effects of tax increases. This evidently applies to the specific component of the excise duty, since the ad valorem component is by definition pegged to the price so its contribution to the minimum incidence can be predetermined.

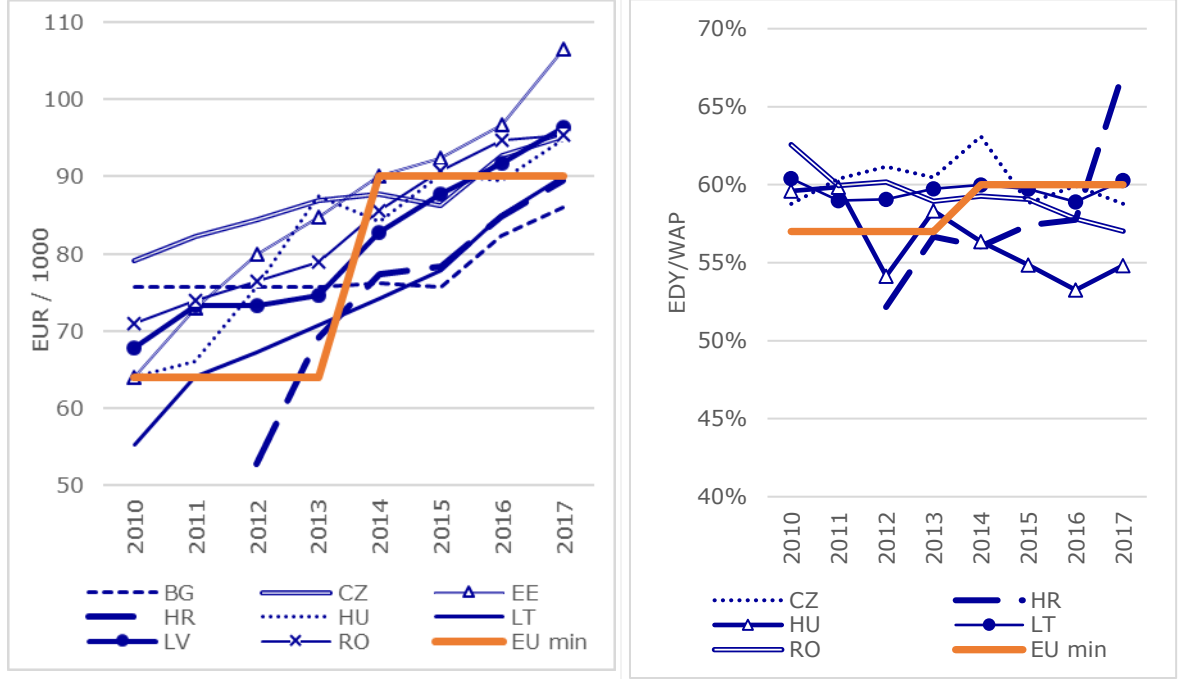
Another influencing factor was the ***transitional period*** extended to certain low-tax countries (BG, EE, EL, LT, LV, HU, PL, RO and HR) to meet EU minima. This provision diluted the effects of EU minima, allowing MS to more gradually reach the level required, without major acceleration. As Figure 4.10.A shows, in most countries tax increases followed a rather constant trends, except BG and to some extent CZ where a clear acceleration occurred after 2015. The impact of transitional period on excise incidence levels is less straightforward (Figure 4.10.B). In retrospect, the rationale for such derogation is not evident, since the incidence is a relative parameter and is therefore not connected to MS price level differences. The transitional period expired at the end of 2017, and since the 1st of January 2018 the MS that were not yet compliant has further increased their tax rates and are possibly now aligned with EU minima.[215] According to the MS authorities consultation results, a relative majority of MS were satisfied with the duration of the transitional period, but a non-negligible share judged it too long and somehow undermining of EU Directive's objectives.[216] Conversely, a couple of MS considered it as too short for their country needs.

[215] Actual figures will be available only in 2019, so current compliance cannot be verified. It is useful to highlight that by 'compliance' we mean that MS rates are matching (i.e. equal or above) the EU minima. However, this should be intended as 'technical compliance' and not 'legal compliance', since as seen the transitional period and other derogations allowed MS to legitimately remain below the EU minima.

[216] To mitigate possible adverse effects on cross-border flows of products, a measure was introduced in the Horizontal Directive to restrict the amount of tobacco that travellers can bring for private use from the countries under derogation to the rest of EU. Such restrictions have been lifted since 1st January 2018, with the end of the transitional period.

Figure 4.10 – Impact of EU minimum rates on excise duty in selected MS

A) EU minimum fixed amount and excise levied on least expensive products in low-taxing MS	B) EU relative minimum rate and excise incidence at WAP in selected MS (in %)



Source: *Author's elaboration based on Euromonitor International price data (Figure A), and EDT data on WAP and excise duty levels (Figure A, B)*
Legend: *EU min= prescribed EU minima levels; WAP=weighted average price; EDY=excise duty at WAP.*
Note: *Only countries falling below the respective EU minima (and not exempted by the 'escape clause') are displayed. Excise duty levels are deemed inclusive of MED (where applicable). The excise duty levels in Figure A are based on observational price data converted in EUR. In countries with a national currency part of the variation can be due to fluctuation in the exchange rates.*

Overall, some 14 MS (out of 24 respondents) reported a direct ***impact on national policies*** of the EU minima for cigarettes, which means that they adjusted their national rates because of the EU requirements. The EU minima for other tobacco products were less effective: some eleven MS modified the tax rate for FCT due to EU minima, nine MS did it because of OST minima and only six were directly affected by EU minima on cigars and cigarillos (see Table 4.5). Self-reported estimates seem somehow greater than the actual number of cases where national rates were indeed below EU minima throughout the period considered. This seems due to a certain degree of subjectivity in the way respondents have interpreted the concept of 'direct impact'. Additionally, a few more MS compliant with the EU minima reported an 'indirect' impact, i.e. the fact that EU minima influenced / inspired the national policies. This was more the case with products other than cigarettes (some six MS reporting 'indirect' effects) than with cigarettes (three MS). All in all, the majority of MS resulted directly or indirectly influenced by EU minima.

The tax and price levels of other countries also played a role in the tax policy decision taken by some MS (see Table 4.5.B). For the relative majority of respondents, the risk that high differentials might fuel undesired cross-border flows has a moderate influence in the setting of national rates, but for nearly one-fifth of respondents, such influence was rated 'high' or 'very high'. Unsurprisingly, the geographical factor matters: tax levels in neighbouring countries emerge as more influential than the overall EU average levels, while price levels in non-EU countries (especially those considered a major source of illicit products) resulted more important for countries close to EU Eastern border.

Table 4.5 – Impact on Member States tax policies of EU minima and other countries taxation

A) Perceived direct / indirect impacts of EU minima on national policy (number of MS)

	Direct impact	Indirect impact	No impact
Cigarettes	14	3	7
FCT	11	6	7
Cigars and cigarillos	6	6	12
OST	9	6	9

B) Estimated influence of tax and price levels in other countries on national tax policies (number of MS)

	VH	H	I	L	VL	DK
Tax and price levels in other neighbouring EU Member States	0	5	10	4	4	0
Overall tax and price levels in the whole EU	3	2	7	4	7	0
Tax and price levels in non-EU countries (of origin of illicit trade of cigarettes)	2	1	6	4	9	0

Source: *Consultation of MS tax authorities (24 respondents)*
Legend: *VH=very high; H=high; I=intermediate; L=low; VL= very low; DK=don't know.*

In accordance with the Directive's intervention logic, the EU minima were intended *inter alia* to facilitate ***convergence*** in the tax levels applies in MS, that is a reduction in the 'gap' between the lowest and the highest-taxing countries. In turn, this would reduce the distortive effects on competition of tax-induced cross-border flows of products and contribute to the smooth functioning of the Single Market. The results of the consultation show that tax authorities have mixed views on the extent to which such objectives have been achieved. In particular:

- Most MS (18 out of 24) are poorly or not satisfied with the achievement of the Directive as regards convergence in tax levels.
- Convergence in specific geographical regions of the EU received a slight better outlook than the overall EU-level convergence. This seems *prima facie* coherent with the attention that MS pay to tax levels in neighbouring countries, as discussed above.
- The convergence in FCT tax levels was also deemed poorly or marginally satisfactory by the majority of respondents.

Unsurprisingly, dissatisfaction was expressed primarily by high-tax countries, which would have liked to see rates in low-taxing countries growing at a steeper pace. Conversely, low-tax countries appear less critical with the convergence outcomes. This position should be seen in the light of their perceptions regarding the ***unintended consequences*** of increasing rates to comply with EU minima (Table 4.6.B). In particular:

- The majority of respondents reported an increased inflow of products from lower-taxing countries as well as from non-EU countries (including illegal products) following the increase in domestic tax levels, with costs that are being examined in Section 4.4.2.
- Almost no change is reported in the estimated outflow from these countries towards higher-taxing countries. Only two MS reported a decline.

Against this background, it is evident that stronger efforts for convergence would have been considered by these countries as more disruptive than beneficial.

Table 4.6 – Tax authorities views on convergence and cross-border flows

A) Perceived achievement of the convergence objective (number of MS)

	VS	QS	SS	NS	DK
Cigarettes tax levels – whole EU	1	5	8	10	0
Cigarettes tax levels – own country region	3	5	5	6	3
FCT tax level – own country region	2	5	5	6	3

B) Perceived impact of EU minima on cross-border flows (number of MS)

	SI	MI	NC	D	DK
Inflow from low-tax MS	1	5	4	1	1
Outflow to high-tax MS	1	2	6	2	1
Inflow from non-EU countries	4	3	2	1	1

Source: *Consultation of MS tax authorities (24 respondents).*
Legend: *Table A: VS=very significant, QS=quite significant, SS=somehow significant, NS=not significant, Table B: SI= significant increase, MI= moderate increase, NC= no change, D=decrease; DK=don't know*
Note: *In Table B, respondents include only MS who had to increase their tax levels to comply with EU minima requirements.*

In numerical terms, it is useful to compare the initially expected scenarios with how things actually developed. For the baseline, we can refer to the ***2008 Impact Assessment carried out by the Commission*** supporting the proposal for revision of EU minima (hereinafter 'IA 2008').[217] The IA 2018 simulated the effects of raising the EU minima on the WAP of cigarettes in MS. Among other scenarios, IA 2008 considered the impact of raising the fixed amount to EUR 90 per 1000 cigarettes - which actually entered into force in 2014 - and of raising the relative minimum to 61% with an escape clause at EUR 122 – also enacted in 2014 but with slightly lower levels (60% and EUR 115). As Table 4.7 shows, these changes would have theoretically led to an increase of the average EU WAP of some EUR 13 for the fixed minimum revision and of EUR 8 for the relative minimum revision. The fixed amount revision would have contributed to improving convergence, by reducing the standard deviation of the distribution[218], but the relative minimum revision would have slightly worsened it. The compounded effects of the two measures would have nonetheless be positive for convergence.

The IA 2008 estimates were based on the very strong assumption that the WAP levels in 'unaffected' countries (i.e. countries already above the required new minima) could be considered fixed, so the WAP increase in 'affected' countries would have led to a partial closing of the 'gap'.[219] In reality, WAP has evolved steadily in all MS, and the increase was not necessarily driven by EU minima, but often and significantly by national tax policies and other market factors. The actual trends calculated in this Study are laid down in Table 4.7 for comparative purposes. It should be preliminary noted that there are differences in the 2006 baseline used by IA 2008 (based on a hypothetical conversion of MPPC into WAP) and those calculated in this Study (based on empirical price data reported by Euromonitor International). In particular, the hypothetical WAP estimated under IA 2008 indicates a higher degree of convergence at the start (standard deviation equal to 66.0 *vis-à vis* 80.5 as estimated based on market monitoring data), which influences the overall assessment. More specifically:

- As seen, IA 2008 had forecast an improvement of price convergence following the application of the EU minima (standard deviation dropping from 66.0 to 56.5). According to our Study, in the year before the Directive entered into force (2010) the standard deviation of MS WAP levels was 72.0. The introduction of the new minima at the beginning of 2014 did not improve convergence. In fact, in that year, the

[217] SEC(2008) 2266, Accompanying document to the Proposal for a Council Directive amending Council directive 95/59/EC, 92/79/EEC and 92/80/EEC on the structure and the rates of excise duty applied to manufactured tobacco.
[218] The standard deviation is a statistic measures of the dispersion of a dataset in relation to its mean. The more spread out the data, the higher the standard deviation. In this context it can therefore be used as an indicator of the degree of convergence in the WAP levels of Member States in relation to the EU average.
[219] 'Affected' countries is the Commission terminology used in IA 2008 to designate MS that needed to increase their rates to comply with the new EU minima.

standard deviation of MS WAP levels soared to 89.0, and has continued increasing until 2017 (92.4). The explanation is that WAP levels in countries not directly touched by the EU minima have also increased, and the 'convergence effect' driven by EU minima proved insufficient to offset this general trend.

- For a more realistic measurement of the convergence trends it can be useful to examine trends in constant prices (i.e. net of inflation), using 2006 as the baseline year. As Table 4.7 shows, a diverging trend is still registered but of a much smaller magnitude (i.e. standard deviation equal to 86.5 in 2017 instead of 92.4). This can mitigate the negative judgment on the effectiveness of EU minima on MS WAP convergence.

Table 4.7 – Trends in the WAP of cigarettes across MS, theoretical and actual scenarios

MS	WAP of cigarettes - IA 2008				WAP of cigarettes - Study estimates			
	Baseline 2006	€90 scenario	61% scenario (esc. clause €122)	Combined scenarios	2006	2010	2014	2017
AT	174.8	174.9	201.8	201.8	188.5	189.4	216.5	238.1
BE	188.6	188.6	204.3	204.3	181.5	226.4	265.4	294.0
BG	91.4	124.2	91.4	124.2	59.6	112.5	120.7	128.3
CY	167.4	169.4	193.1	193.1	..	163.5	207.0	214.0
CZ	102.6	134.4	102.6	134.4	62.8	136.8	139.0	165.4
DE	214.2	214.2	214.2	214.2	204.7	229.8	257.0	281.9
DK	197.6	197.6	209.9	209.9	178.9	230.5	274.4	269.8
EE	102.8	131.8	102.8	131.8	65.9	110.3	150.0	177.5
EL	117.4	142.3	128.2	142.3	115.2	156.6	181.8	204.8
ES	112.8	133.0	112.8	133.0	108.0	166.5	218.7	226.0
FI	194.1	194.1	206.1	206.1	191.8	216.1	273.4	334.9
FR	238.0	238.0	238.0	238.0	237.6	270.0	336.8	340.3
HR	..	..	..	..	93.0	121.3	144.7	159.6
HU	103.3	134.5	103.3	134.5	92.5	110.6	166.6	179.6
IE	322.1	322.1	322.1	322.1	320.4	423.5	464.0	538.0
IT	165.1	165.1	185.3	185.3	156.9	205.0	226.0	244.0
LT	98.1	130.4	98.1	130.4	50.5	108.0	130.0	159.0
LU	155.5	161.0	182.8	182.8	..	180.1	218.1	229.9
LV	97.9	126.2	97.9	126.2	38.4	110.6	139.7	160.0
MT	175.1	175.1	175.1	175.1	..	188.0	214.2	286.8
NL	188.5	188.5	207.2	207.2	193.3	236.7	297.2	309.5
PL	83.6	122.6	83.6	122.6	64.7	116.0	154.1	160.2
PT	138.8	144.9	138.8	144.9	121.1	172.5	206.7	223.5
RO	..	..	..	..	48.7	119.6	150.0	172.8
SE	201.3	201.3	220.9	220.9	202.1	248.3	288.3	301.6
SI	115.3	141.4	124.6	141.4	86.8	132.0	170.5	178.4
SK	96.2	130.6	96.2	130.6	77.3	132.8	151.6	161.7
UK	341.6	341.6	341.6	341.6	332.4	313.5	478.0	456.3
EU Average	**160.9**	**174.1**	**168.6**	**180.7**	**138.9**	**183.1**	**222.9**	**242.7**
Standard deviation (current prices)	**66.0**	**55.1**	**68.0**	**56.5**	**80.5**	**72.0**	**89.0**	**92.4**
Standard deviation (constant 2006 prices)						**72.4**	**82.7**	**86.5**

Source: *Authors' elaboration based on IA 2008 and EDT (integrated by Euromonitor International where required).*

Note: *The IA 2008 estimated baseline figures for 2006 reportedly take into account the envisaged switch to WAP from MPPC, while in this Study are elaborated from Euromonitor International data. The scenarios are selected among those developed in IA 2008, based on its proximity to actual changes adopted. The scenario for the relative minimum is stricter than the one actually adopted, i.e. 61% (with an escape clause at €122) against 605 (with an escape clause at € 115). All price variables are expressed in current price term, except the 'standard deviation in constant 2006 prices' that is calculated deflating price levels through the Eurostat HICP index (for all products) based on 2006 levels.*

Price levels are linked to excise duty levels but the correspondence is not perfect since other factors are also at play, such as manufacturers pricing strategies, 'forestalling', VAT

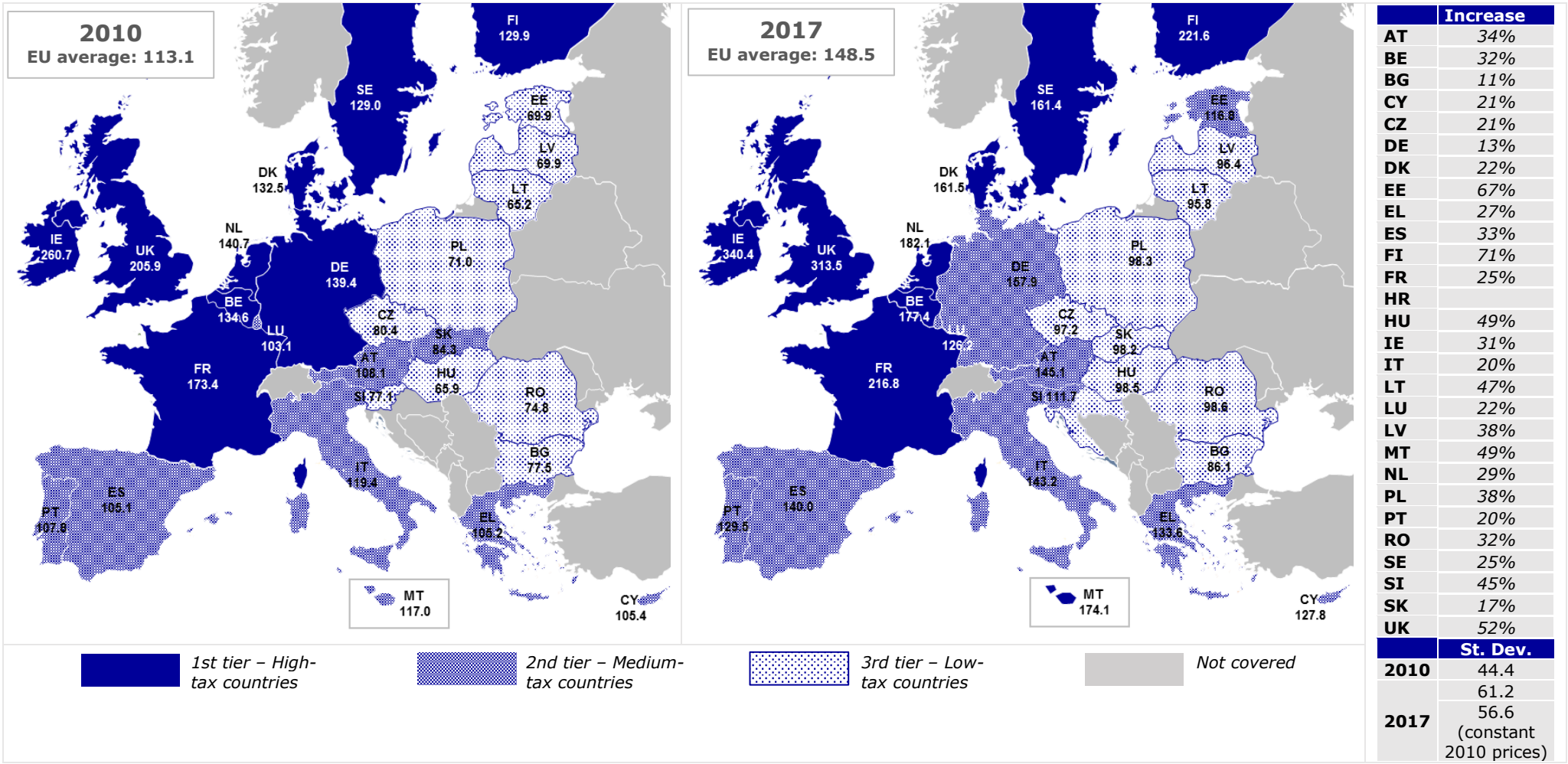
levels, currency exchange rates (which are relevant for cross-border purchase) etc. In this sense, it is fair to say that the convergence in excise duty levels can 'contribute to' rather than 'determine' the convergence in price levels. So, to assess the effectiveness of the intervention, it is important to consider also the degree of ***convergence occurred in MS excise rates*** and compare it to what happened to prices, in order to establish the underlying causes for the limited impacts registered. The excise duty yield measured at WAP level (EDY) can be used to describe how the situation has changed between 2010 and 2017 (see Figure 4.11 overleaf). The main results of the analysis can be summarised as follows:

- EDY levels have grown in all MS in the 2010-17 period, with the EU average moving from EUR 113.1 to EUR 148.5 per 1000 cigarettes, in current price terms. The growth rate was not homogeneous between countries: it exceeded 50% in FI, UK and EE, while in DE, SK and BG remained below 20%. The magnitude of increase has not necessarily corresponded to the MS situation in the baseline year and to the change required to achieve greater convergence. In this respect, MS can be divided in four groups:
  - (i) Low-taxing MS that significantly increased their rates, thus contributing to convergence, such as: SI, PL, HU, LT, LV and EE;
  - (ii) Medium/high-taxing MS that limitedly increased their rates, thus also contributing to convergence, such as: DE, DK, IT, SE and FR[220];
  - (iii) Medium/low-taxing MS that limitedly increased their rates, thus fuelling divergence, such as: BG, CZ and SK;
  - (iv) Medium/high-taxing MS that significantly increased their rates, thus fuelling divergence, such as: FI, UK, MT and BE.
- The EDY data dispersion, again measured as the standard deviation around the mean of the distribution, has increased overtime, both in current and 2010 constant price terms (in the latter case the dispersion is smaller).
- Another possible method is to compute MS deviation from the EU average using indices (EU=100)[221] and to measure the data points dispersion overtime. This approach prescinds completely from monetary values and can therefore be considered a bit artificial. In this case, the dispersion of EDY values in 2017 is the same as in 2010 (only 0.01% point of difference).
- When compared to WAP trends, the EDY convergence trend appears weaker: in fact, the standard deviation/WAP ratio has decreased overtime, while the standard deviation/EDY ratio has increased.[222] So it can be argued that the limited price convergence achieved in the period can be attributed primarily to the excise policies of the MS, rather than to other factors.

Overall, the achievement of the 'convergence' objective by means of EU minima provision appears inherently problematic. This is not surprising since 'convergence', in strict sense, would require not only a 'minimum floor' but also a 'maximum ceiling' target, otherwise the efforts made by low-tax MS can continue being too easily neutralised by rather small increases in high-tax MS. For example, at the current tax levels, a substantial 10% tax increase in the lowest taxing MS (equal to some EUR 8.6) could be offset by a tiny 3% tax increase in the highest taxing MS (equal to EUR 10.1). Evidently, EU 'maximum' rates are unfeasible and undesirable from a public health perspective. In this sense, neither the EU minima nor any other available policy tools in the EU excise legislation seem fit to achieve a significant degree of convergence, although they may still help avoiding that tax (and price) differentials get even wider. This objective might therefore be reformulated in a way that is more consistent with what can realistically be achieved.

[220] In the case of FR the tax increase adopted in 2018 is not included in the time period covered by the analysis (2010-17).
[221] For more precision, we have measured such deviation as the difference in the logarithms of EDY values.
[222] We used ratio rather than standard deviation values to make the two measures more comparable.

Figure 4.11 – Excise yields of cigarettes in MS (2011 and 2017)



	Increase
AT	34%
BE	32%
BG	11%
CY	21%
CZ	21%
DE	13%
DK	22%
EE	67%
EL	27%
ES	33%
FI	71%
FR	25%
HR	
HU	49%
IE	31%
IT	20%
LT	47%
LU	22%
LV	38%
MT	49%
NL	29%
PL	38%
PT	20%
RO	32%
SE	25%
SI	45%
SK	17%
UK	52%

	St. Dev.
2010	44.4
2017	61.2
	56.6 (constant 2010 prices)

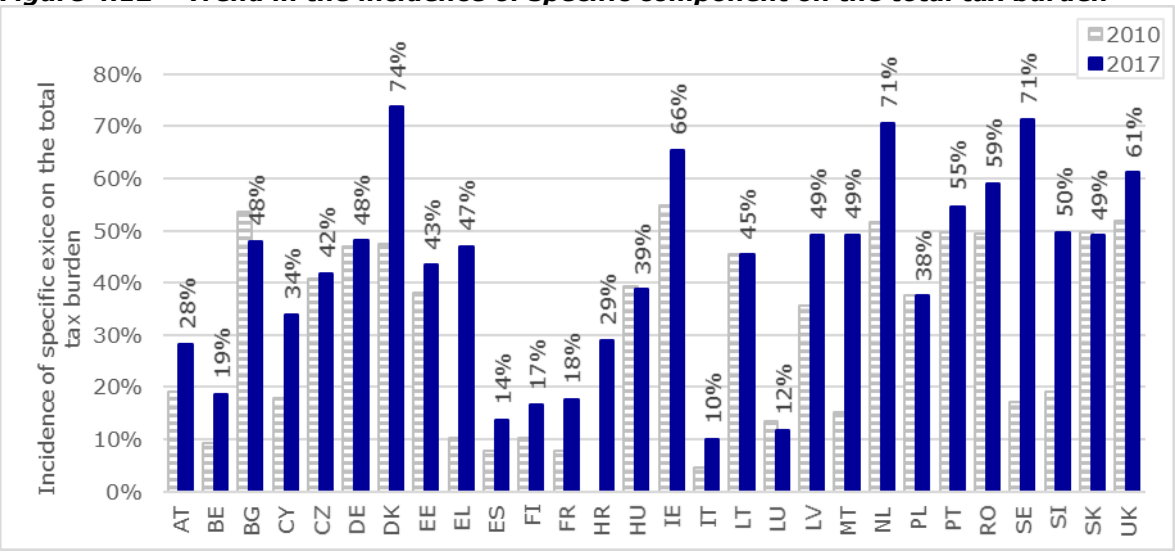
Source: *Author's elaboration on EDT data.*
Legend: *St. Dev.=standard deviation.*
Note: *Classification of MS in three groups based on the distribution of percentiles. Excise yields are expressed in EUR per 1000 sticks (nominal value), including MED. The 'EU average' represents the EDY mean value in the MS distribution. The standard deviation in constant 2010 prices is calculated deflating price levels through the Eurostat HICP index (for all products) based on 2010 levels.*

- **EFFECTIVENESS OF THE MIXED STRUCTURE REQUIREMENT**

As discussed in Section 4.3 ('Relevance') the mixed structure requirement for cigarettes is a provision that was introduced in the early versions of EU excise legislation as a first step towards a progressive harmonisation of tax regimes across MS. The subsequent introduction of EU minima has made the mixed structure obligation somehow redundant with respect to the main policy objectives of the excise legislation. As stated in the Impact Assessment Summary published by the Commission in 2008: *"Only applying the minimum €64 on all cigarettes would create a tax floor for all cigarettes in the EU. It would also reduce the tax and price gap between Member States more than other options and, to an appreciable extent, integrate public health concerns".*[223] The rationale for having a mixed structure obligation in place as a general harmonisation and convergence tool was notably reduced, and this provision remained more narrowly focussed on the harmonisation of excise duty structures, i.e. the respective combination of specific and ad valorem (plus VAT) components. As laid down in Art. 7.3 of the Directive, it is envisaged that at the final stage of harmonisation of structures the incidence of the specific component on the total tax burden shall be the same in all MS (arguably, at WAP level), so that retail prices would fairly reflect manufacturers' delivery prices and – as added in Recital #9 – competition is not "*distorted by the effects of the charging of the tax and, consequently, in the opening of the national markets of the Member States*".

In reality, this objective is far from being achieved and the latest revisions have not represented a significant contribution in this direction. The 2010 revision actually expanded the specific component threshold range from 5%-55% to 5%-76.5% of the total tax burden, allowing MS greater flexibility to set the share of the specific component at higher levels (and close to the totality of the excise duty). A minor convergence of thresholds entered into force in 2014, with the lowest threshold of the specific component raised from 5% to 7.5% but no change of the upper threshold. Only one country (IT) was directly affected by this revision, so its effectiveness in terms of concrete outputs can be rated as low. Nonetheless, as Figure 4.12 shows (see also Section 3.3.1), there has been a generalised trend among MS toward a ***greater reliance on the specific component***. On average, the incidence of the specific component on the total tax burden (including VAT) moved from ca. 31% in 2010 to 42% in 2017, but in eight countries (DK, IE, NL, PT, RO, SE, SI and UK) it now accounts for the majority of the tax burden (against four MS in 2010).

Figure 4.12 – Trend in the incidence of specific component on the total tax burden



Source: *Author's elaboration of EDT data.*

[223] SEC(2008) 2267, Impact Assessment Summary.

This shift towards specific taxation could have been indirectly influenced by the 'direction' of change in the mixed structure thresholds but there is no clear evidence of that. More likely, it has been driven by public health and, possibly, by tax revenue considerations, namely:

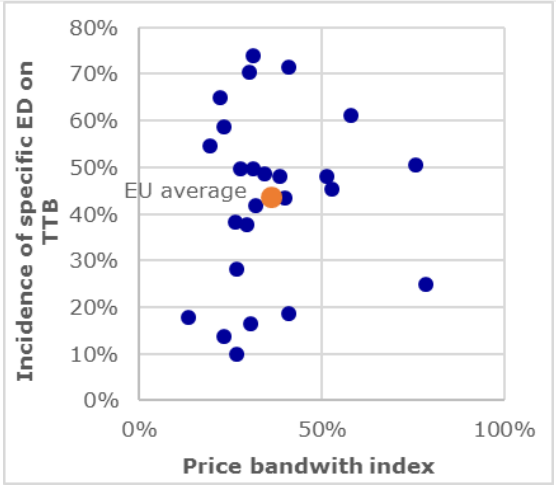
- The specific component can compress the retail price bandwidth upwards, thus contributing to tackle low price products and reduce accessibility, in line with public health objectives. The FCTC guidelines – in line with various publications from public health experts – advise in favour specific taxation, or alternatively mixed regimes, against purely ad valorem taxation.
- Since the specific component is based on volume (hence the demand side) and not price (hence the supply side), it allows more stability and predictability in tax revenues and market developments, making them somehow immune to manufacturers' price strategies.

We have therefore investigated empirically and by means of simple correlations whether market and tax trends in the EU in the period considered can confirm or not the above assumptions. First of all, we have analysed whether the mixed structure trends, influenced or not by the EU rules, have indeed compressed the ***retail price bandwidth*** in MS. To this end, we have correlated two indicators: (1) the incidence of the specific component on the total tax burden in MS; and (2) the width of the price band in MS. The underlying assumption is that the specific component compresses the price bandwidth, so an increase in its incidence should transform into a narrower price bandwidth. The analysis of the correlation (see Figure 4.13 below) proved that this did not happen in reality. In particular:

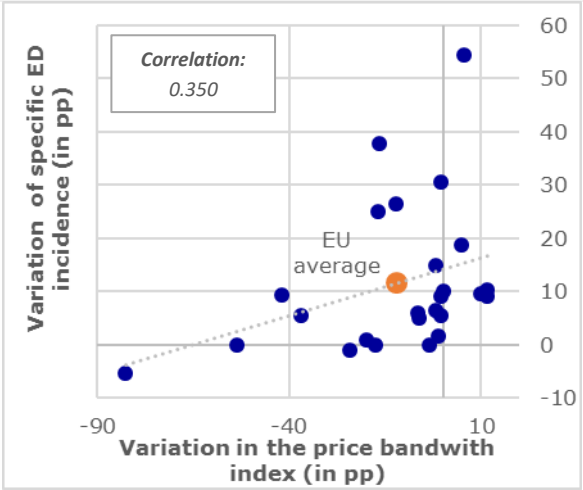
- There is no evident correlation between the incidence of the specific component and the width of the price band. In other words, countries with prevalent specific taxation do not display more compressed price bands than countries with prevalent ad valorem taxation. This seems primarily due to the fact that there is no such thing as a prevalent ad valorem regime in the EU that is not mitigated by a 'minimum excise duty' (MED) that greatly limits any downward trend of price in the lower segments of the market. In other words, the accessibility price in all MS is determined by a specific taxation, either the specific component of the mixed structure or the MED, which is *de facto* a specific tax.
- By consequence, the increase in the specific component share registered in various MS in the 2010-17 period can only mildly be associated with a compression of bandwidth. A certain price compression did occur in the period considered, but the effects of the greater incidence of the specific component cannot be disentangled from the effects of MED. Since the MED is the major determinant of the lowest market price of cigarettes (P_{min}) and is in place in 26 MS, it can be argued that it was the increase in MED levels more than the increase in the specific excise component that determined the registered compression of price band-width in most MS

Figure 4.13 – Impact of specific taxation trends on market structure in MS

A) Absence of correlation between specific ED incidence and retail price bandwidth in MS



B) Mild correlation in the trends of specific ED incidence and retail price bandwidth (2010-17)



Source: *Author's elaboration based on Euromonitor International price data (for the price bandwidth index), and EDT data for the incidence of specific excise duty on the total tax burden.*
Legend*: ED=excise duty; TTB=total tax burden (including excise duty and value-added tax); pp=difference expressed in percentage points.*
Note: *the incidence of specific ED on TTB (Figure A) is calculated at WAP level. The price bandwidth index indicates by how much (in %) the highest market price observed is greater than the lowest price on a given geographical market (i.e. the ratio between the price difference and the lowest market price observed). Since both indicators are expressed in relative terms, it makes no difference if current or constant prices are used for the measurement. For the same reasons exchange rates fluctuations have no influence. The variation in the trends of these variables (Figure B) is expressed in percentage point difference between 2017 and 2010 values. LU, MT and CY are not included due to lack of observational price data.*

Secondly, we have examined whether a greater reliance on specific duties may indeed contribute to the ***stability and predictability*** in the collection of tax receipts. To this end, we have again investigated the correlation between the specific component share of MS and (1) excise duty revenue trends; and (2) the 'volatility' of revenues overtime.[224] The results, summarised in Figure 4.14, suggest that such contribution is not apparent, namely:

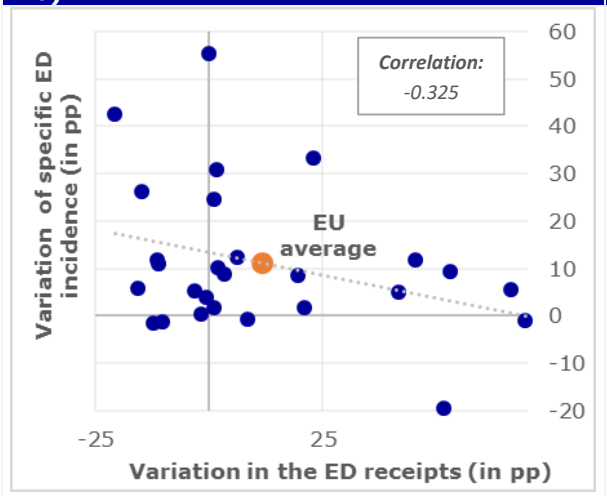
- As Figure 4.14.A shows there is weak and possibly inverse correlation between the excise duty revenue trend and the trend toward a greater incidence of the specific component over the total tax burden. It cannot be excluded that for some MS a decline in the receipts was somehow expected, but considering the stability of revenues is the single most important priority for tax authorities - as emerged from the targeted consultation (see Section 4.3.4) – it can be safely assumed that in most cases such decline (registered by some eight MS) was unintended. The shift toward a greater reliance on specific taxation cannot be considered the root cause of it, but at any rates it did not help against it.
- No correlation has emerged between one country's reliance on the specific component and the 'volatility' of the excise revenue – i.e. the extent of fluctuation in revenues' growth rate year-on-year (Figure 4.14.B). Of course, correlation does not entail causation, nonetheless the results indicate that while the recourse to specific component may in principle delink tax revenues from the retail prices fixed by the industry, in practice other pervasive factors may affect the outcome. These factors may include again MED levels (see Box 4.3 further below), but also industry's portfolio pricing policies, with redistributive effects over the different segments (or

[224] The possibility of using the ratio between planned and actual revenue as an indicator was considered but eventually discarded since estimations on tax collection are set in a non-uniform way across MS causing comparability issues. Such information is also very complex to retrieve with the sufficient degree of granularity required.

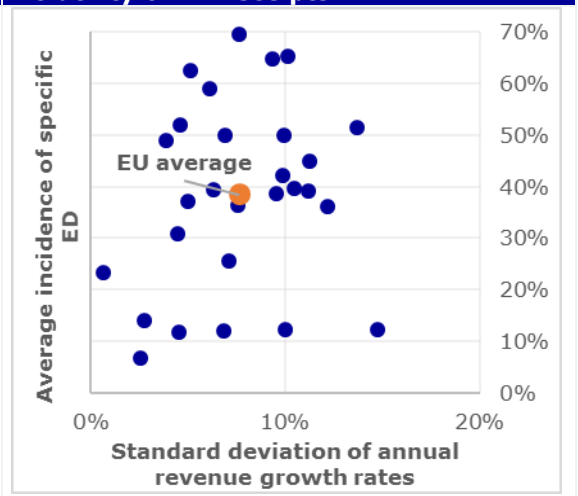
products or even geographical market), as well as other 'data noise' factors like forestalling practices.

Figure 4.14 – Impact of mixed structure trends on stability and predictability of tax revenues

A) Mild correlation between specific ED incidence and ED receipts trends (2010-16)



B) Absence of correlation between the average incidence of specific ED and the volatility of ED receipts



Source: *Author's elaboration based on EDT data on excise duty levels and tax receipts from cigarettes (modelled, when required).*
Legend*: ED=excise duty; pp=difference expressed in percentage points.*
Note: *The variation in the trends of excise duty revenues and the specific component incidence (figure A) is expressed in percentage point difference between 2016 and 2010 values (revenue data for 2017 were unavailable at the time of the analysis). HR is not included in Figure A due to data unavailability. In figure B the average incidence of specific ED refers to the simple mean value for each MS registered in the 2010-16 period. The 'volatility' proxy indicator is measured in two steps: (i) measuring the annual growth rate in excise duty revenues for each country/year, (ii) calculating for each MS the standard deviation from the mean of annual growth rates, in the period 2010-16.*

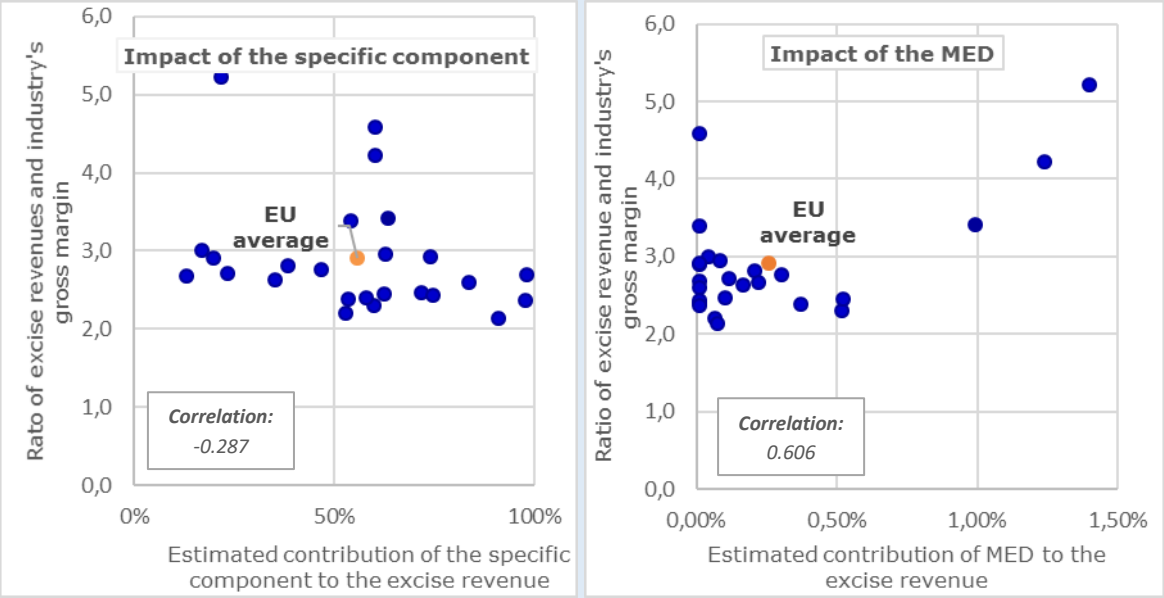
Box 4.3 – Comparing the effects of specific taxation and MED on price levels and tax revenues

As discussed, the taxonomy of excise structure regimes includes three main groups: (1) MS with fairly balanced ad valorem and specific components; (2) MS with high specific component; and (3) MS with high ad valorem component plus MED. Instead there is no 'prevalently ad valorem' regimes, so leaving aside balanced regimes the comparison is essentially between types (2) and (3) above. This is not a secondary point, since as discussed in greater details in Volume 2 of this Report, some of the literature on tobacco control (and stakeholders) tend to promote specific taxation as the more effective for public health purposes since 'all cigarettes are equally harmful irrespective of price'. This is certainly a robust argument when specific taxation is compared to purely ad valorem regimes, but it needs to be put in the appropriate context. In particular, the fact that such regimes do no longer exist in the EU, and that the taxation of cigarettes in the EU is much more sophisticated than in most of non-EU countries. In this respect, various experts are increasingly endorsing 'ad valorem plus high MED' regime as the most effective for tobacco control (and possibly for tax revenue purposes). In fact, the combination of MED, which addresses the low segment of the market, and the ad valorem component, which affects the premium segment, leaves little room for price strategies redistributing or otherwise neutralising the effects of the tax.

In reality, little can be meaningfully said (and is not the aim of this Report) on industry's pricing strategies, which may involve redistributive practices not only between price segments, but also between products and/or geographical markets. Nonetheless, the result of a simple empirical analysis can corroborate the above assumption. We have compared the ratio between excise revenue and industry's gross margins (defined as the total market value net of taxes – both excise duty and VAT) – that is a proxy indicator for the degree of tax revenue 'optimisation' for MS - with the estimated contributions of the MED and of the specific component to the total excise

revenue. The two resulting diagrams (Figure 4.15) are based on estimates elaborated from Euromonitor International market data, so they do not necessarily correspond to the EDT data used elsewhere in this Report, but constitute acceptable proxies of the real market conditions. It emerges that there is no correlation between the degree to which tax revenues rely on the specific component and a favourable (from tax perspective) repartition of the economic value between tax revenues and industry margins, whereas higher incidence of the MED-related revenues (as a proxy for 'ad valorem plus high MED' regime) tend to correlate with high excise revenue markets.

Figure 4.15 – Impact of the specific excise component and the MED on tax revenues and industry gross margins (2017)



Source: *Author's elaborations based on Euromonitor International dataset.*
Notes: *To estimate the respective contribution of the specific component and the MED to the total excise revenue of MS, we have first calculated the excise paid by each brand for each excise component (assuming MED as an incremental component) and aggregated the estimates at country level. For the ratio, we have divided such amount by the estimated market value net of taxes.*

To triangulate the outputs of the above empirical analysis we have also investigated econometrically the differentiated effects of the various tax components on the different price segment of cigarettes. Using again the Euromonitor International store-check price data we have assessed the different 'pass-through elasticity' effect of a tax increase on retail price. In this analysis we have assumed 'fixed effects' across countries since the objective is to compare the impact of the different components depurated by all other intervening factors. Among the different models tested (see Volume 3), the most robust returned the following results[225]:

- ***Ad valorem excise***. In the higher segments of the market (defined as percentiles of the price distribution) an increase of ad valorem taxation by 1% is correlated to a price increase of 0.6%. In the lower segments the same tax increase would produce a price increase of less than 0.3%. This can be explained by the fact that in the lower segments of the market such increase would partly remain below the MED threshold, so it would have no tangible effects.
- ***MED***. In the lower segments an increase of 1% of the MED is associated with a 0.6% price increase. Such coefficient partly reduces for middle price segments (0.5%), and further with higher segments (0.4%). It is noteworthy that there is still a measurable effect on premium products, although the MED by definition would not regard them. We can explain this result assuming some sort of redistribution of the tax increase by manufacturers on other products in the portfolio, to partly offset the effects of the MED.
- ***Specific excise***. The impact on price associated to this component is negligible, i.e. below 0.01%, for all segments of the market, suggesting that in EU countries there is no demonstrated effectiveness of this instrument for reducing cigarettes accessibility.

[225] All the estimates reported have an interval of confidence of 99%.

The results of data analysis appear largely coherent with ***stakeholders' perceptions*** and in particular with tax authorities' feedback on the effectiveness of mixed structure' requirements. Overall, about one-third of respondents report a direct impact of mixed structure requirements on their national tax policies, which includes not only forced changes of structure but also the impossibility to go above or below the EU thresholds. For a similar share of respondents there was no impact whatsoever, and the remainder reported 'indirect' impact, which can be interpreted as the general trend towards a greater reliance on specific excise duty, also in MS that are very far from the mandated thresholds.

On the other hand, respondents' satisfaction with the level of harmonisation achieved is prevalently modest, possibly in line with the few tangible outcomes delivered. Even more negative is the outlook on the harmonisation of structures for products other than cigarettes, but the results of the consultation indicate that only a small minority of tax authorities would support an extension of the mixed structure obligation to products other than cigarettes.

- **THE EFFECTIVENESS OF THE MINIMUM EXCISE DUTY (MED) PROVISION**

The EU excise legislation envisages the possibility for MS to apply a Minimum Excise Duty (MED) on cigarettes (Art 8.6) and on other products (Art 14.1), i.e. to levy an additional amount of duty from products whose tax charge falls below a certain 'floor' (see Box 1.1 in Section 1 for a technical review). Most MS apply a MED[226] on cigarettes (26 in 2017), and a minority of them also on other products (11 MS apply it to FCT, 9 to cigars and cigarillos, and 7 to other smoking tobacco).

The rationale behind the minimum excise duty (MED) provision is laid down in recital 4 of the Directive: '*Without prejudice to the mixed tax structure and the maximum percentage of the specific component on the total tax burden, Member States should be given more effective means to levy specific or minimum excise duty on cigarettes, so as to ensure that at least a certain minimum amount of taxation applies throughout the Union.*'[227] It seems implicitly recognised that the mixed structure arrangements may not be sufficient to meet the convergence objective of EU legislation, especially as far as low-price products are concerned. This was even more clearly stated in prior versions of the legislation, where explicit reference to such products was made: *'Member States should be given more effective means to deal with unfair pricing practices or the appearance of products which disrupt the market. This objective can be achieved by authorising Member States to levy a minimum excise duty on cigarettes.'* So, the effectiveness of the MED can be measured primarily with respect to its impact on raising market prices in the low-price segment of the market and/or preventing the 'accessibility' price (i.e. the lowest market price) to fall below certain levels.

The earlier versions of the Directive envisaged an upper limit to the MED on cigarettes. Directive 95/59 established that MED level could not exceed 90% of the total tax levied on MPPC products.[228] With Directive 2002/10 the limit was transformed into 100% of the excise duty levied on MPPC.[229] Since Directive 2010/12/EU there is no longer any 'cap' on MED so, in principle, it could be set above 100% of the excise duty levied at WAP.[230] On the other hand, MED remains subject to the mixed structure requirements,

[226] Including similar mechanisms like the so-called 'minimum total tax' MTT.
[227] Directive 2011/64/EU.
[228] Council Directive 95/59/EC of 27 November 1995 on taxes other than turnover taxes which affect the consumption of manufactured tobacco.
[229] Council Directive 2002/10/EC of 12 February 2002 amending Directives 92/79/EEC, 92/80/EEC and 95/59/EC as regards the structure and rates of excise duty applied on manufactured tobacco.
[230] Council Directive 2010/12/EU amending Directives 92/79/EEC, 92/80/EEC and 95/59/EC on the structure and rates of excise duty applied on manufactured tobacco and Directive 2008/118/EC. Actually – as shown in Section 3 (baseline) – only a couple of countries have seemingly set MED above 100% of EDY.

although there are uncertainties on how compliance with mixed structure should be checked. The matter was extensively analysed from a legal perspective under the Ramboll 2014 evaluation and subsequently under the previous EA 2018 study, which showed how the current provision leaves room for ***discrepancy of interpretation***. A summary of the problem is provided in Box 4.4.

Box 4.4 – Legal uncertainty of the MED provision and the relation with the mixed structure

As regards the relationship between the MED and the mixed structure requirements there are different views and interpretations among MS. For instance, some countries maintain that the mixed structure is an issue separate from the MED, so the MED can exceed the excise duty at WAP level since there is no (longer a) threshold in the EU legislation. Some added that as long as at least part of the market is taxed according to the mixed structure the Directive requirements are fulfilled. The possibility to set the MED above the excise duty level at WAP is the source of conflicting views. In fact, since mixed structure requirements are referred to the WAP level, it can be argued that the MED may override the mixed structure *de facto* establishing a fully specific regime. So, various MS have adopted a 'conservative' approach and ensure that the MED level is equal or lower than the excise duty on WAP. Similarly, other MS pragmatically assume that whether a sufficiently large share of the market (e.g. 50%) is not subject to the MED, the mixed structure obligation is respected.[231]

Most public authorities agree that the MED provisions are uncertain, and the need for a legal clarification was expressed by the majority of respondents to the tax authorities consultation (12 MS in favour of a clarification against 4 MS who did not consider it necessary). At the same time, it should be highlighted that the matter has caused so far limited dispute or administrative burden, namely:

- The request for a CJEU ruling following the dispute between a MS authority and one economic operator on a 'special' MED provision adopted in the national legislation (i.e. C-428/13 Italy v. Yesmoke Tobacco spa). The case did not regard MED 'as such' but the peculiar interpretation at stake had originated from its unclear implementation rules.
- Two complaints raised by industry's representatives regarding excessive MED levels (i.e. above 100% of EDY at WAP) in PT and EL (in case of PT, this was compounded by the linking of MED level to the MPPC). In both cases, these complaints were reportedly dismissed, considering MED level set 'around' the excise level at WAP as acceptable, but also underlining the lack of a legal ruling of the CJEU on this point.[232]
- A request for clarification was raised by Finland on the correct interpretation of the MED. As reported by Ramboll 2014, the Commission informal answer affirmed that "*as long as the most of the cigarettes are taxed according to a specific and an ad valorem tax component (…) the MED is not too high*",[233] highlighting at the same time the absence of a firm legal opinion on these articles of the Directive and the ensuing impossibility to give more guidance. The following in-depth interview with Finnish authorities carried out under EA 2018 showed that this pragmatic principle is nonetheless difficult to follow, since a few EUR/cents can make a big difference in terms of market share under the MED regime. So it is important that the mechanism remains as flexible as possible.

In conclusions, while the existence of a legal interpretation issue is recognised, MS do not consider this matter as of particular urgency. Actually, as the EA 2018 findings showed, some MS authorities are of the opinion that this uncertainty has the positive side of allowing a great margin of flexibility, so they would be in favour of a legal revision only if such flexibility is maintained.

Beside legal consistency issues, the discrepancy in the interpretation of MED provisions may have consequences on competition and market functioning, as the Commission itself wrote in the conclusions of its 2015 Report on the Directive: "*the evaluation findings show that some distortions within the internal market are created through*

[231] See Ramboll 2014, p. 84-86. Evidence confirmed also by the case-studies conducted under EA 2018.
[232] Summary based on information reported by the industry.
[233] Ramboll 2014, p. 85.

differentiated application of the MED".[234] It can be assumed that the removal of the 'cap' implies that MS are allowed set MED at any level they consider necessary to pursue their 'minimum floor' objectives. At the same time, the need to respect mixed structure obligation stands to prevent excessive and unjustified uses of the MED. In the remainder of this Section we will therefore examine the effectiveness of MED from two perspectives: (1) its intended ***impact on the lowest market price levels*** and convergence, and (2) its possible undesirable ***adverse effects on competition***.

We have analysed the first perspective by comparing how the application of MED influence the 'lowest viable price' (P_0) – i.e. the level where price is equal to the total tax burden (so the margin after tax is nil), and the 'lowest market price' actually available on the market (P_{min}). For the comparison, we have assumed that the pre-tax price contained in P_{min} would not change if the MED were not in place, and we have estimated by how much P_{min} would reduce in such scenario. The results are summarised in Table 4.8 below:

- The MED plays a major role in raising the lowest viable price level in a number of countries. In 2017, the application of MED increased the lowest viable prices (P_0) in the EU by some EUR 32 on average (+34% in relative terms). The effects depend evidently on the level of MED established but in general impacts are more marked in countries with a prevalent ad valorem structure such as BE, ES, FR, LU, FI and IT, while it is almost negligible in countries with a high specific component (e.g. IE, NL, and UK).
- The lowest market price (P_{min}) actually available on the market is generally some 21% higher than P_0, ranging from as low as 4% up to 40%. The estimated effects of the MED largely depend on this 'mark-up' and on whether P_{min} is set above or below the level where MED kicks-in. On average, the current P_{min} level seems only some EUR 5 higher than the hypothetical P_{min} level in the absence of the MED (i.e. 2% in relative terms), suggesting that the above impact of MED on the lowest viable price is only limitedly reflected in the actual lowest market prices. Again, effects seem more pervasive in MS with a prevalent ad valorem structure. Apparently, the magnitude of MED in this respect has somehow reduced if compared with 2010 values.
- The MED seems to have mixed effects on the 'convergence' objective: the standard deviation of P_0 levels decrease with the application of MED, signalling a certain degree of convergence, however, the application of MED seems to have the opposite (although small) effect on the standard deviation of P_{min} levels. This seems to indicate that while MED has theoretically the capacity to reduce tax differentials between MS (in the lowest price segment), in practice market dynamics and the mark-up strategies adopted by operators may jeopardise this outcome.

Additionally, we have evaluated the effectiveness of MED in stabilising markets and preventing price wars and other disturbances of the competition. To this end, we have tested the correlation between the MED level – measured as the proportion between the MED 'kick-in' price and the WAP level – and the volatility of the lowest market price – measured as the standard deviation of P_{min} annual growth rates in the 2010-2017 period. A mild negative correlation is registered (coefficient: -0.343), indicating that MED might slightly contribute to reduce fluctuations and support stabilisation, although it does not represent a decisive factor.

[234] Report from the Commission to the Council on the REFIT evaluation of Directive 2011/64/EU and on the structure and rates of excise duty applied to manufactured tobacco. COM(2015) 621 final.

Table 4.8 – Estimated impact of MED on the lowest price of cigarettes in MS (2017)

	Lowest viable price - P_0			Lowest market price - P_{min}			
MS	**w/ MED**	**w/out MED**	**Diff.**	**w/ MED**	**w/out MED**	**Diff.**	**Diff. in 2010**
AT	168	118	50	217	214	3	0
BE	204	116	88	241	222	19	12
BG	103	92	11	118	115	3	13
CY	145	110	35	..	..	..	..
CZ	115	94	21	148	145	3	7
DE*	187	158	29	223	210	13	13
DK	(201)	201	(0)	(235)	235	(0)	1
EE	126	119	7	143	143	0	4
EL	151	151	0	165	165	0	10
ES	159	78	81	205	202	3	6
FI	262	166	96	272	244	28	16
FR	256	145	111	315	306	9	0
HR	112	83	28	..	..	..	..
HU	120	98	23	154	149	5	6
IE	401	401	0	473	473	0	(0)
IT*	155	61	94	217	217	0	31
LT	109	97	12	131	129	2	(0)
LU	136	49	87	..	..	..	..
LV	117	102	14	138	134	4	7
MT	195	174	20	..	..	..	..
NL	220	214	5	288	287	1	4
PL	121	97	24	147	142	5	0
PT	157	143	14	205	203	2	6
RO	113	106	7	151	151	0	7
SE	(201)	201	(0)	(232)	232	(0)	25
SI	135	120	15	160	156	4	8
SK	116	102	13	137	133	4	2
UK	369	356	13	390	384	6	(0)
EU average	**173**	**141**	**35**	**213**	**208**	**5**	**9**
St. Dev.	**73.1**	**77.6**		**85.0**	**84.1**		

Source: *Author's elaboration based on EDT data on excise duty levels and Euromonitor International price data.*
Legend*: Figures in brackets=MED is not applied; diff.=difference in monetary terms; (..)=data unavailable or unreliable.*
Note: *The 'lowest viable price' P_0 is the level where price is equal to the total tax burden, i.e. the pre-tax price is zero; the 'lowest market price' P_{min} is the lowest actual price observed on national markets in a given year, converted in EUR where required. For the 'without MED' scenarios of P_{min} we have assumed the pre-tax price remain fixed. (*) DE and IT apply a minimum total tax (MTT) inclusive of VAT, instead of a MED. For these countries we have calculated the corresponding theoretical MED (i.e. the MTT without the VAT level applicable at the level where the MTT kicks in). The EU average difference in monetary terms include only MS applying a MED.*

Finally, we have analysed how high MED levels impact on the conditions for competition, using two main metrics as proxies: (1) the share of the national market falling under the MED, and (2) the extent of price bandwidth compression in the low segment of the market. To measure the share of market under MED we have estimated the price level where MED 'kicks-in' in every MS and added-up the market share of brands whose price is below that level. Then, we have compared the size of the market share under MED with the MED / EDY ratio in order to determine the effects of allowing MS to set MED at a level close or above 100% of the excise duty levied at WAP level. In this case the objective was not to determine whether the two indicators correlate – which is so by design[235] - but the implication for competition. The empirical results – displayed in Figure 4.16.A below – indicate that in countries with a MED exceeding 98% of the EDY, the majority of the market is typically no longer subject to a pure mixed structure tax regime, while where MED exceeds EDY by only one percentage point nearly three-fourth of the market becomes subject to it (the variability between countries depends on the market structure and how the different categories of product are positioned). There is no established benchmark to decide whether such high MED levels actually distort competition, however it clearly creates different conditions of competition between

[235] The EDY refers to WAP level, that is by definition the midpoint of market distribution, so the more MED approaches to EDY the larger share of market falls under it.

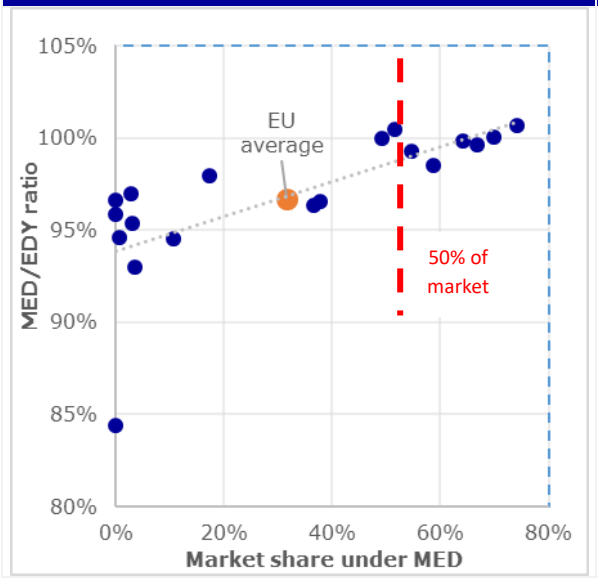
products falling under the MED and those above the MED level, which are subject to the mixed structure. As Figure 4.16.B shows the higher the MED/EDY ratio the smaller the price bandwidth is (with reference to the price segment below the WAP), and therefore the higher the competitive pressure. There are cases where high MED levels determine a WAP/P_{min} ratio smaller than 110%, meaning that some half of the market displays very limited price differences because of the MED. Again, this is not *per se* a market distortion, provided manufacturers / importers are free to set selling prices, still a few considerations on whether this use of MED is in line with the overarching principles of the Directive are appropriate:

- The MED was conceived primarily as a tool to correct the downside of proportional taxation which the 'mixed structure' de facto is, although the ad valorem component varies greatly between MS. In this regard, the MED should prevent the risk of too low taxation (hence too low prices) in the bottom segments of the market. This principle was confirmed by a CJEU ruling[236], and is consistently applied in various MS, where MED is used primarily as a preventive mechanism (directly affecting limited or no products).
- The 'mixed structure', inclusive of a proportional component, has been identified as the most appropriate structure to ensure fair competition and proper market functioning – a point not only expressed in the Directive but also in past CJEU rulings concerning the EU excise legislation for tobacco. It derives that the higher the share of the market under the 'mixed structure' regime the greater such principle is safeguarded. In this respect, it should be noted that the mixed structure rules allow MS to apply a nearly fully-specific taxation, so MS keen to apply a highly-specific regime are already entitled to do so, with no need to make recourse to MED to this end.
- The different conditions of competition between the part of the market under the MED level and the part above it may represent or not a threat to proper functioning depending on three main aspects:
  (i) The competitive advantages that can derive for products falling above the MED threshold, which depend on the respective share of ad valorem and specific taxation. In brief, this advantage is big when the difference in the excise duty applied to premium products and to low-price products is small.
  (ii) The big manufacturers have often product portfolios covering all segments of the market and therefore their pricing strategies are generally integrated. However, in the case of dominant players in specific price segments the competitive (dis)advantages mentioned in point (i) could be magnified.
  (iii) Finally, as discussed, the issue is possibly magnified by the respective shares of market falling under different regimes. The smaller is the share of the market above MED and possibly enjoying more favourable conditions of competitions the higher is the risk of infringing the principles of the Directive.

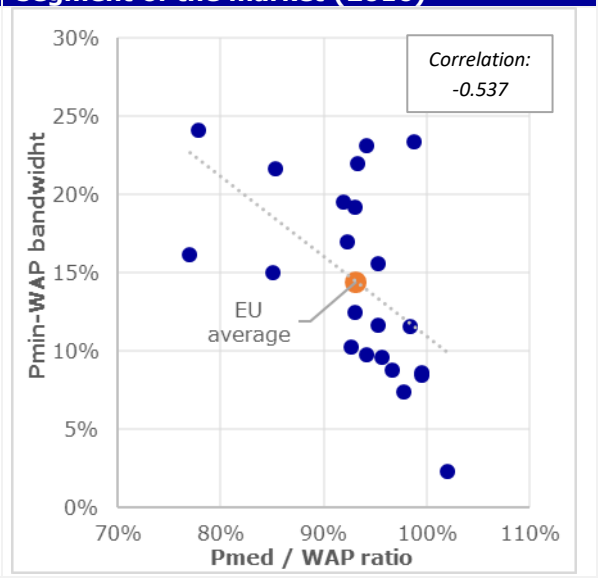
[236] CJEU C-428/13: "the introduction of that minimum excise duty ought, pursuant to Directive 2011/64, to be designed to prevent, in a low-price context, the possibility of there being, below that threshold, a proportional reduction of the tax payable and accordingly, to prevent the level of taxation of the cheapest cigarettes from being too low."

Figure 4.16 – Estimated effects of MED on competition and market functioning

A) Distribution of MED/EDY ratio and the share of market under MED (2016)



B) Correlation between MED level and price bandwidth compression in the low segment of the market (2016)



Source: *Author's elaboration based on EDT data on excise duty levels and Euromonitor International price data and market share data by brands.*
Legend*: EDY=excise duty yield at WAP level; P_{min}=lowest actual price observed on national markets; P_{med}=price level where MED kicks-in; WAP=weighted average price.*
Note: *The share of the market is calculated aggregating the market share of brands whose price, according to Euromonitor International dataset, falls under the level where MED kicks in. The unallocated market share in the Euromonitor International dataset have been redistributed among surveyed brands 'pro-quota'. Euromonitor International collects price data at the beginning of the year while tax increases may occur anytime during the year so it is possible that in some MS the estimated share of the market under MED is inflated by the time-lag of the observation. The analysis does not cover countries that did not apply MED in the year considered, countries that applied the MTT (DE, IT) and countries for which price data are unavailable in the Euromonitor International dataset (LU, MT, CY).*

4.4.1.2 Substitution across products

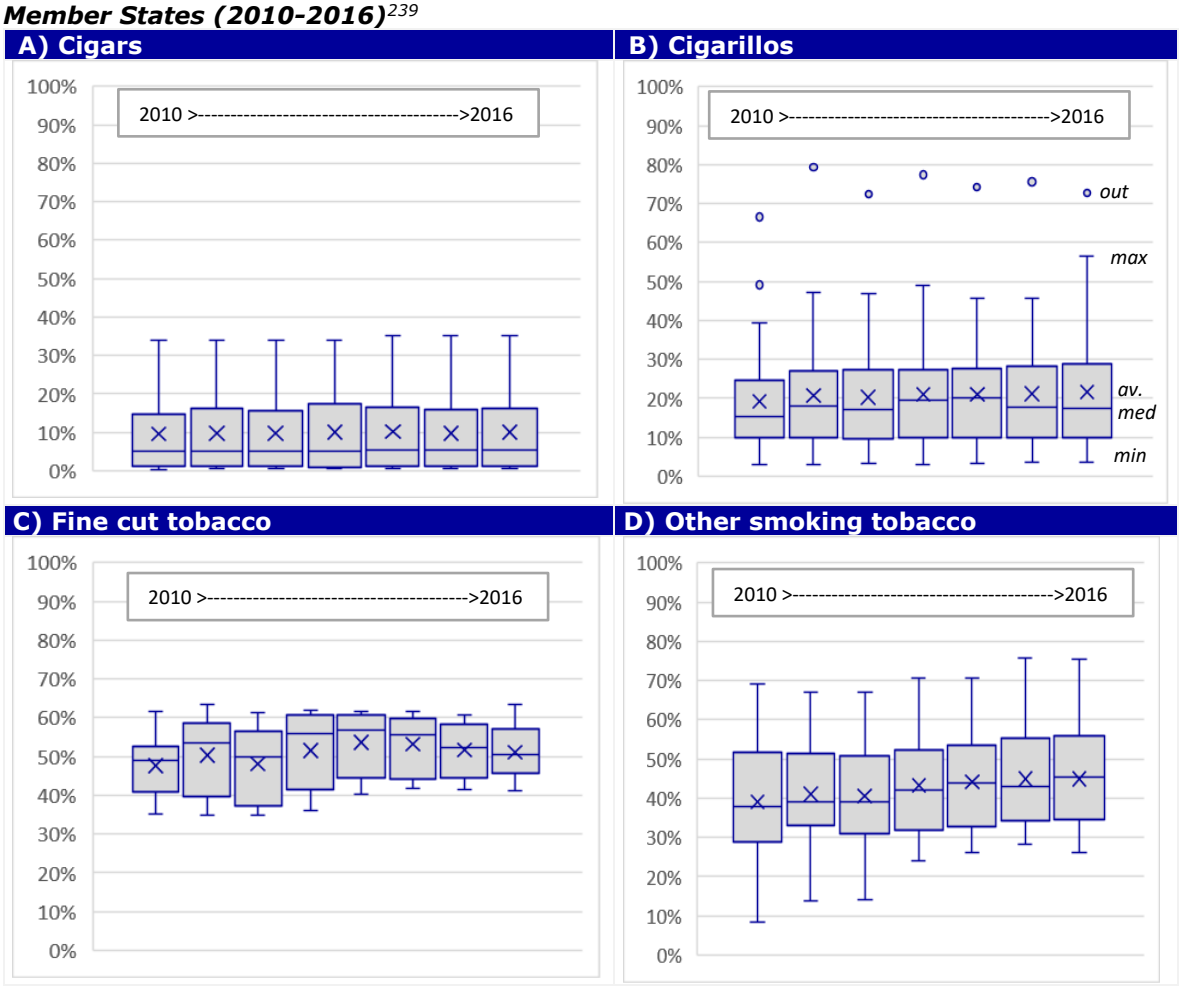
- **EFFECTIVENESS OF THE TAXATION OF PRODUCTS OTHER THAN CIGARETTES**

As regards tobacco products other than cigarettes, the EU legislation establishes a generic objective of 'harmonised incidence of tax' for all products belonging to the same group of manufactured tobacco.[237] The policy instrument to achieve this objective consists again of minimum rates set at EU level, but MS have a much greater flexibility in meeting these minima than in the case of cigarettes, since: (1) there is the option to choose whether to align with the EU fixed minimum amount or with the EU relative minimum rate, and (2) the EU minima level have a lower incidence on price than in the case of cigarettes.[238]

As a result, the effects of EU minima on the excise rates applied in MS are - with some exceptions - quite limited and, by consequence, the incidence of tax within the different categories of product appears not so harmonised across the EU. Figure 4.17 shows the ***dispersion in tax incidence levels*** registered across MS overtime, for the different types of products. Data are displayed using a 'box and whisker' plot where the central box represents the two central quartiles of the distribution (divided by the median value) and the 'whiskers' represent the lower and upper quartiles.

[237] See Recital #17 of Directive 2011/64/EU.
[238] See Section 3.3 – 'Baseline'.

Figure 4.17 – Variability in the incidence of excise duty on price (WAP level) among Member States (2010-2016)[239]



Source: *Author's elaboration based on EDT data integrated by Euromonitor International (where required).*
Legend*: max=maximum value of the distribution; min=minimum value; med=median value; av.=average value; out='outlier'.*
Note: *tax incidence is measured as the excise duty yield at WAP, not considering possible MED effects. Figures do not include due to data unavailability: HR until 2012 (all graphs), CY (C, D), and MT (C). Since for most of products/countries EDT data on WAP are not available, the estimates have to be taken with some caution.*

In summary, the trends described in Figure 4.17 are as follows:

- The highest dispersion is registered with cigarillos, especially due to some 'outliers' MS, but part of this dispersion seems attributable to measurement bias, and in particular to the fact that the distinction between cigars and cigarillos can be based on definitions that varies across geographical markets. At any rate, the degree of dispersion seems increasing overtime.
- The tax incidence on OST products also seem very skewed, but over the years a modest harmonisation trend can be noted. The OST figures actually refer to the sole pipe tobacco. The dispersion would evidently be even greater if water-pipe tobacco and, where relevant, heated tobacco products were included.
- There is comparatively smaller dispersion in the tax incidence levels for cigars, especially for the first three quartiles, which are almost stably comprised between 1% and 18% of tax incidence. This seems due primarily to the fact that tax is often a very minor component in the retail price of cigars, so tax increases that appear significant in relative terms may have little consequences in terms of overall tax incidence.

[239] On reading 'box and whiskers' plots see: https://www.statcan.gc.ca/edu/power-pouvoir/ch12/5214889-eng.htm

- The lowest variability of the tax incidence indicator is registered with FCT. This is not surprising, considering that taxation represents in this case a higher share of the retail price and that the EU minima have constantly increased in the period considered. After 2013, in particular, a reduction in the central quartiles range indicates that FCT tax incidence in some half of MS is more and more harmonised.

Where the incidence of tax on price is small (e.g. cigars and cigarillos), there is evidently a limited influence of fiscal policies on retail price or, in other words a greater freedom for operators to fix prices in relation to factors other than the tax, such as import/production costs etc.[240] Furthermore, although precise data are unavailable, the retail price bandwidth in categories like 'cigars and cigarillos' and 'other smoking tobacco' is likely much greater than for cigarettes and FCT, due the heterogeneity of the products included and not so much to the tax regime applied.

Furthermore, we have examined econometrically the possibility that the price of substitute products (in particular FCT) is influenced by the tax levels of cigarettes (cross-effects) and we have found fairly weak correlations. In particular, it seems that an increase in the taxation (hence price) of cigarettes may initially mitigate the increase of FCT price, but after a short period of time they catch up.

To conclude, it is worth underlining that the objective of harmonising tax incidence relates to the outputs of the legislation, but the intended impacts are not explicit. This is especially the case with the 'cigars and cigarillos' and 'other smoking tobacco' categories. The case of FCT is different (see next section) since it is repeatedly compared to cigarettes in the Directive, stating for instance that: "*it is necessary […] to take account of the degree of competition existing between [FCT and cigarettes], reflected in consumption pattern observed, as well as their equally harmful character*' and that the objective of EU minima is therefore '*to obtain effects similar to those in the field of cigarettes*".[241] Similar assumptions are not made for the other tobacco products, so there is no explicit cross-country price convergence objective in the Directive – coherently with the limited risk and magnitude of cross-border licit or illicit shopping – and no explicit statement on the harmfulness of these products and the risk of tax-induced substitution. With respect to 'public health protection' objective, it can be further noted that there are practical constraints in using the tax leverage for reducing the consumption of these products due to the abovementioned heterogeneity of the corresponding tax categories and the inherent limitations of 'one-size-fits-all' nature of EU minima. In particular:

- ***'Cigars and cigarillos'*** price levels can vary greatly, from extremely cheap 'borderline' cigarillos to very expensive premium cigars. This corresponds to different patterns of consumptions (daily or occasional) and possibly different elasticity of the demand to price. At the same time, as extensively discussed in the previous EA 2018 study, it is poorly feasible and useful to create separate tax categories, for various reasons[242]:
  - (i) The issue of where the line could be meaningfully drawn. The easier way to draw a distinction would be based on unit weight of products, however the substitution problem (and consequent tobacco control issues) regards the patterns of consumption and the fact that certain products (so called 'borderline' cigarillos) are arguably designed to offer a cheaper alternative to cigarettes. So, a distinction merely based on weigh would not correspond to the problem.
  - (ii) The latest review of the definition of this tax category, and the expiration of the derogation extended to DE and HU has effectively tackled the issue of

[240] The extent of price variability for products other than cigarettes is described in some details in Section 3.3 (baseline)
[241] See Recitals #18 and #19 of Directive 2011/64/EU.
[242] See EA 2018 – Section 5

'borderline' cigarillos' in most EU countries, and consumption trends are, as seen, declining. Fixing periodically the product definition seems also more efficient than creating new categories, since every new distinction increased the chances for new 'borderline' products.

(iii) The cigars and cigarillos category represents a tiny share of the tobacco market, and in the majority of MS this is not creating any issue, so a split is hardly justified on the ground of proportionality and the administrative costs incurred by MS for revising their excise systems. In this sense, it should be considered that the majority of MS tax these products by unit and not by weight, so introducing a per weigh distinction would require substantial arrangements.

(iv) The distinction would notably enhance the incoherence between excise and customs classification, duplicating the classification effort for MS competent authorities and creating room for classification uncertainties.

- ***'Other smoking tobacco'*** is by definition a residual category and includes (at least) pipe tobacco and water-pipe tobacco, which are products with different characteristics, consumption patterns, and price levels. Furthermore, since OST is taxed per Kg and water-pipe tobacco has a high unit weight due to the molasses and humidity contained, it results much more heavily taxed than pipe tobacco. In addition to that, various MS have started taxing heated tobacco products under this category. As discussed in Section 4.3 this seems a less than ideal situation and the establishment of separate tax categories should be considered.[243]

➢ CONVERGENCE OF EU MINIMA FOR FCT AND CIGARETTES

To prevent and mitigate the competitive distortions of tax-induced substitution, the EU legislation explicitly aims at '*bringing the minimum levels for fine-cut tobacco (…) closer to the minimum levels applicable to cigarettes.*'[244] Before proceeding with the evaluation of results achieved in this respect a few assumptions and considerations are needed:

- The two products are not fully comparable and the degree of convergence of levels depend *inter alia* on the equivalence applied. In this Study we are assuming a conversion rate of 0.75g of FCT equal to one stick of cigarette. As described in Section 3.2, this is the conversion rate used in the recent TPD2, but other sources may use conversion rates from 0.6g to 1.0 per cigarettes.[245]
- There is no benchmark to measure the effectiveness of the EU provisions, since the policy scenarios examined in the Commission's IA 2008 were not enacted. More precisely, the IA 2008 assumed that both EU minima requirements (fixed minimum and relative minimum) would have become compulsory for FCT – as for cigarettes – but this option was not retained. So, no meaningful comparison can be made between the planned and the actual results.
- The Directive does not specify whether the intended convergence regards the incidence of tax on price or the amount of excise levied in absolute terms, or both.

The starting point of the analysis required comparing ***how EU minima for cigarettes and FCT have evolved*** in the period considered, to determine whether these trends were conducive to the expected convergence of levels in MS. It emerged what follows (see Figure 4.18):

[243] The possibility of establishing a separate tax category for water-pipe tobacco was examined in the EA 2018. Various pros and cons have been identified. As a first step, it was suggested to enhance monitoring efforts, since a vast majority of water-pipe tobacco consumed in the EU is apparently tax-evaded, and the actual market size and consumption patterns are consequently unknown. See EA 2018 – Section 5.5.

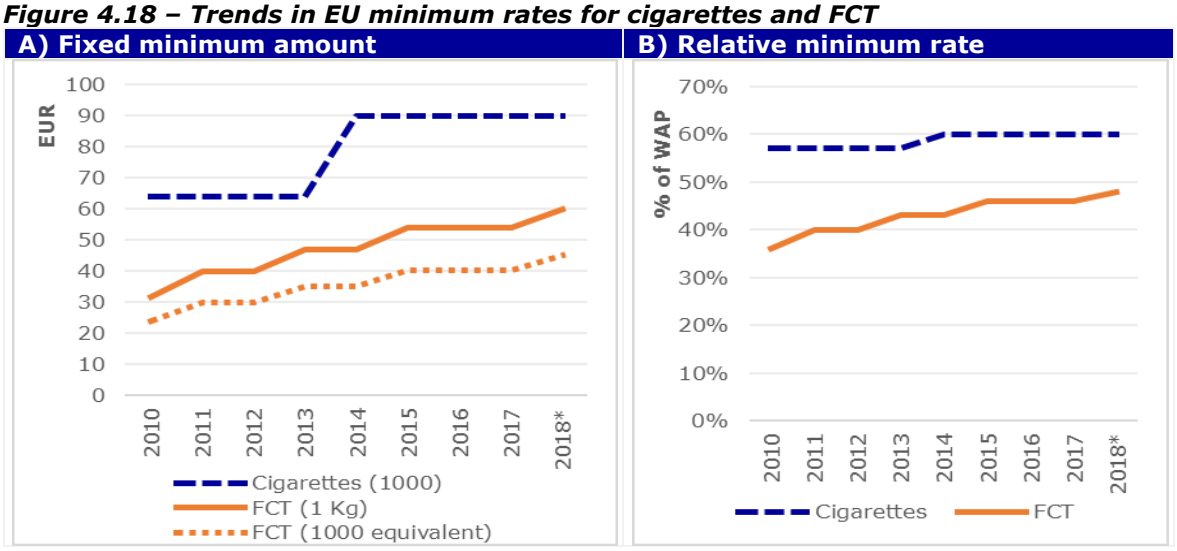
[244] See Recital #19.

[245] The IA 2008 used a 1g per cigarette equivalence, based on the fact that many consumers did not use filter (so part of the tobacco put in a hand-rolled cigarette was eventually not smoked). This assumption seems no longer valid today, so a 0.75g rate seems more realistic.

- As regards fixed minima, levels have progressively approached until 2013, then, following a major increase in the fixed amount minimum applicable to cigarettes, the 'gap' rapidly widened. Since then, it has gradually reduced but by 2017 it had not yet reached the level of the baseline year (2011). In fact, in stick-equivalent, the ratio between the FCT and the cigarettes was 47% in 2011 and 45% in 2017.[246]
- As regards relative minima, the convergence trend is more evident. In 2011, FCT relative minimum was some 17% points lower than cigarettes one; in 2017 the difference had reduced to 14% points, and since January 2018 is 12% points.

In summary, there seems to be a partial mismatch between the objectives of the EU excise legislation and the specific measures put in place to achieve them. However, EU minima levels are weak predictors of how things have possibly evolved in practice in individual MS (see the following section) for two main reasons: (1) MS could derogate the EU minima on cigarettes based on the transitional period and/or the 'escape clause' provision; (2) any of the two FCT minima can be derogated if the other one is met.

Figure 4.18 – Trends in EU minimum rates for cigarettes and FCT



Source: *Author elaboration of Directive 2011/64 provisions.*
Notes*: FCT conversion rate applied 0.75=1 stick. Transitional periods and 'escape clause' are not considered.*

➢ TAX DIFFERENTIALS AND IMPACT ON CROSS-PRODUCT SUBSTITUTION

The EU minima for FCT used to be set in a ***two-thirds proportion*** with the corresponding minima for cigarettes. This 'rule of thumb' was laid down in the Commission Report of 2001[247] and maintained in the following IA 2008 Study but it has not been explicitly mentioned in the Directive itself. The ratio for this 'tax gap' is motivated "*by the different characteristics of the two products*" and, according to IA 2018, it "*allows Member States to take into account the difference between a semi-finished and a finished product*[248]*, differences in cost price between the two products and the relatively labour-intensive process of manufacturing fine-cut tobacco"*.[249]

In the provisions of the Directive the 'two-thirds' proportion has informed the EU minima levels and their overtime evolution, although not in strict terms, as Figure 4.18 above showed. However, there is no reference to it as the required or optimal proportion that MS should apply at country level, so the actual 'tax gap' between FCT and cigarettes

[246] The situation has changed since January 2018 and at the time of writing this proportion is 50%.
[247] COM(2001) 133 final, 14.03.2001
[248] Some MS consider fine-cut tobacco a 'semi-finished product' since it cannot be smoked 'as it is' but requires additional purchases e.g. filters, cigarette tubes, papers etc. as well as consumers' handwork.
[249] Source: IA 2008. The IA 2008 added that this proportion was widely accepted by the stakeholders.

notably differs country-by country. To assess the effectiveness of the Directive in this area, we have firstly examined the uptake of the 'two-thirds' benchmark among MS, and the extent to which they have aligned or departed from it in the period concerned. To this end, we have calculated the ratio between the excise duty at WAP level (EDY) of cigarettes and FCT in all MS, using both the '1g per stick' equivalence that apparently informed the original assumption and the '0.75g per stick' equivalence used in the TPD2. Then, we have developed and analysed two indicators: (1) the divergence between the actual ratio and the 'two-third' benchmark across MS (in percentage points); and (2) the degree of approximation to this benchmark overtime, measured as the difference (in absolute values) between the above divergence registered in 2010 and in 2017. The results are displayed in Table 4.9 below, and can be summarized as follows:

- If the 0.75g equivalence is applied, the ratio between the EDY of FCT and cigarettes is generally below the 'two-thirds' benchmark (except 7 MS). The average divergence from it is of -10.4% points. Only eight MS fall into an interval of +/- 10% points from the benchmark level, indicating a quite high degree of dispersion. Nonetheless, the situation has improved since 2010 and with only two exceptions all MS are today closer to the benchmark than before (by some 10.5% points on average).
- Applying the 1g equivalence, the actual ratio in MS appears closer to the two-thirds benchmark. On average, it results some 8.3% points above the benchmark and the dispersion is somehow lower, with 15 MS falling in the +/- 10% points interval around the benchmark. Some degree of overtime approximation is apparent but to a more limited extent.

Table 4.9 –The approximation of EDY levels between FCT and cigarettes in MS

	Equivalence: 0.75g per stick			Equivalence: 1g per stick		
MS	**FCT / cigarettes EDY ratio**	**Divergence from the 'two-third' benchmark***	**Degree of approximation 2010-17***	**FCT / Cigarettes EDY ratio**	**Divergence from the 'two-third' benchmark***	**Degree of approximation 2010-17***
AT	50%	-17.0	18.2	66%	-0.4	24.3
BE	33%	-33.4	14.5	44%	-22.3	19.3
BG	68%	1.1	16.1	90%	23.6	-22.9
CY	88%	21.4	21.0	117%	50.8	-16.5
CZ	62%	-4.3	13.2	83%	16.5	-15.4
DE	34%	-33.0	5.2	45%	-21.8	6.9
DK	49%	-17.5	5.7	66%	-1.1	7.6
EE	46%	-21.0	11.4	61%	-5.7	15.2
EL	95%	28.8	-24.2	127%	60.6	-32.3
ES	51%	-16.0	19.7	68%	0.9	24.5
FI	47%	-20.1	4.3	62%	-4.5	5.7
FR	56%	-10.5	13.0	75%	8.2	1.0
HR	56%	-10.8	..	75%	7.9	..
HU	43%	-23.9	13.7	57%	-9.7	18.2
IE	68%	1.7	1.6	91%	24.5	-6.6
IT	57%	-9.7	14.7	76%	9.3	1.0
LT	42%	-24.3	5.4	57%	-10.1	7.2
LU	29%	-37.4	12.6	39%	-27.6	16.8
LV	49%	-18.1	13.8	65%	-1.9	18.4
MT	53%	-14.1	5.7	70%	3.4	0.8
NL	41%	-25.8	9.7	54%	-12.2	13.0
PL	54%	-12.7	5.9	72%	5.3	-2.9
PT	70%	3.7	33.1	94%	27.1	-0.3
RO	66%	-1.0	13.5	87%	20.8	20.8
SE	90%	23.0	0.2	120%	52.9	0.3
SI	68%	1.1	31.5	90%	23.7	-2.5
SK	54%	-12.4	-2.7	72%	5.7	3.6
UK	57%	-9.2	5.7	77%	10.0	-7.6
EU	**56%**	**-10.4**	**10.5**	**75%**	8.4	3.6

Source: *Author's elaboration based on EDT integrated where relevant with Euromonitor International data.*
Note*: (*) data expressed in percentage points. The 'degree of approximation' shows how the divergence from the 66.66% benchmark has evolved in the 2010-17 period, in absolute values. Positive numbers indicate that the ratio has come closer to the benchmark, while negative number indicates that has departed from it.*

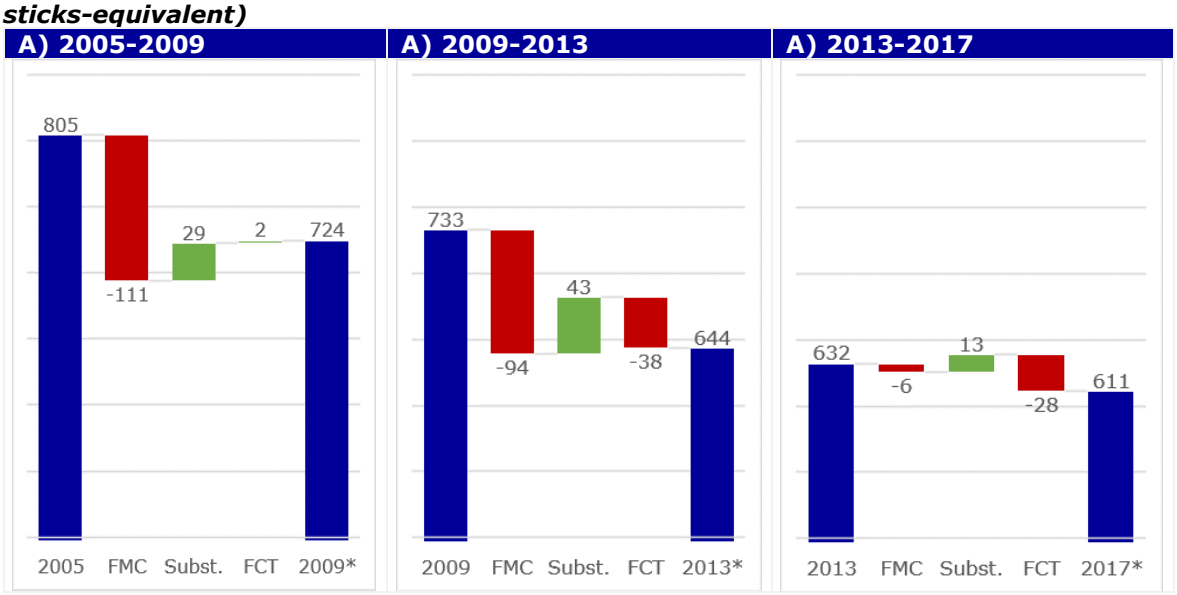
Since the two-third assumption is not a formal provision, it is possible that some MS have interpreted the approximation objective of the Directive as a 100% alignment in the EDY levels applied. This might explain ratios exceeding 90% (under the 0.75 equivalence) registered, for instance, in EL, SE, CY, PT, IE, SI, BG and RO. Conversely, the approximation objective had seemingly scarce influence on a group of countries where the ratio is still below 45% (i.e. LU, BE, DE, NL, LT and HU).

In the final step, we have tried to determine the ***cross-product substitution*** possibly induced by tax differentials. As discussed in Section 2.3, the econometric analysis conducted in this Study allowed to estimate the own- and cross-elasticity demand for the different tobacco products. In particular, we have found statistically-significant correlations between prices and quantity demanded of cigarettes and FCT, which allow to estimate the extent of the substitution caused by price differences. Figure 4.19 below compares demand trends and the extend of the substitution measured in three multi-years periods:

- In 2005-2009, i.e. prior to the revision of EU minima introduced in 2010, there has been a significant reduction of ca. 111 billion pieces in the demand of factory-made cigarettes, that was partly compensated by the substitution with some 29 bn FCT equivalent cigarettes (based on 0.75=1g conversion rate). A further slight increase (2 bn) in the sales of FCT, not related to substitution, has been also registered.
- In the 2009-2013 period, covering the introduction in 2010 of new EU minima, there have been an overall decline of the demand of nearly 90 bn units (including cigarettes and FCT). As Figure 4.19.B shows, the substitution of cigarettes with FCT represented a major share of the cigarettes decline (ca 46%) but, at the same time, the increase in the FCT price levels triggered a parallel decline in the demand of this product. The reduction in the demand of FCT caused by own-price increase nearly offset the increase in the FCT demand caused by substitution.
- In the 2013-2017 period, i.e. after the EU minima increase of 2014, the total decline in the demand has been smaller than in the previous periods and characterised by a greater decline in FCT volume than in cigarettes. Substitution partly mitigated such decline, but overall it continued its downward trends.

It is important to underline that these results are based on econometric modelling and should be taken with some caution. In particular, a few caveats and assumptions are worth mentioning: (1) the substitution to/from illicit tobacco is not considered here, although it may contribute to explain parts of the actual variation in the consumption that is not explained by substitution with FCT; (2) other price-unrelated factors may also affect the general trend in the demand for cigarettes and other tobacco products. These are reviewed in other sections of the Report.

Figure 4.19 – Trends in the substitution between cigarettes and FCT in the EU (in billion sticks-equivalent)



Source: *Author's elaboration based on the results of the econometrics analysis. Market volume data source from EDT.*
Legend: FMC=factory-made cigarettes trend; FCT=fine-cut tobacco trends; Subst.=extent of the substitution of FMC with FCT.
Notes*: For every period analysed the first and the last bar (in dark blue) represent the total cigarettes equivalent consumption, i.e. the sum of factory-made cigarettes and FCT, converted to cigarettes using a 0.75g=1 stick equivalence. The baseline value for each period is based on EDT release for consumption data, while the estimated variation – marked with (*) – is the result of econometric modelling so it approximates but not coincides with the EDT value. The 'substitution' bar (in green) represents the estimated increase in the sales of FCT caused by FMC price increase (based on the estimated cross-elasticity). The 'FMC' and the 'FCT' bars represent the 'own' trend in the two categories, i.e. net of substitution. For a clearer representation, bar dimensions are not proportional to the indicated values.*

- **STAKEHOLDERS OUTLOOK**

The outlook of tax authorities of the Member States on tax-driven substitution varies across the tobacco product concerned (Table 4.10.A):

- Unsurprisingly, FCT results the most problematic of tobacco products as concerns tax-driven substitution. In half of MS consulted, the substitution of cigarettes with FCT is considered a major or a moderate issue. Only five MS have reported no problem in this respect, either because the 'tax gap' with cigarettes is minimal or because the consumption of FCT is limited.
- The substitution with cigarillos is considered problematic only in some countries where low-price (or 'borderline') cigarillos represent a non-negligible share of the market. But for the vast majority of respondents there are modest or negligible issues with these products.
- With very few exceptions, cigars, pipe tobacco and water-pipe tobacco do not pose tax-driven substitution issue, either because their market is marginal or because their price is well-above the price of cigarettes (i.e. cigars and water-pipe tobacco), or simply because for their inherent characteristics and consumption patterns, they are only weak substitute of cigarettes.
- As regards novel products, various respondents have not yet a clear view on the extent of substitution. Anyway, the relative majority of MS do not seemingly see any risk of tax-driven substitution, and only a couple of EU countries consider the substitution with e-cigarettes a major problem.

Focusing on FCT, the results of the consultation show that tax authorities modulate their fiscal policies attributing a major importance to the risk of tax-driven substitution and

set tax levels with a view to neutralise as much as possible any distortive effects on the demand (Table 4.10.B). Of nearly the same importance for MS is to avoid that substitution may undermine tobacco control polices, so various countries have adopted the policy objective of reducing the tax gap between FCT and cigarettes. It should be noted that this objective is not necessarily aligned with the previous objective of neutralising tax-induced competitive distortion, since the two products have different tax-bearing capacities. In fact, for various respondents (7 MS) this is a factor to consider, especially in countries where SMEs are significantly active in the FCT manufacturing industry. Finally, FCT as a 'buffer' against illegal products emerges as the most controversial issue, with almost the same share of respondents accepting or rejecting this argument.

Overall, some half of tax authorities consulted expressed satisfaction with the EU legislation efforts to bring the tax level of FCT closer to the level of cigarettes. Among those who did not appreciate them (5 MS) the reasons for dissatisfaction can be opposite: for some MS the approximation efforts were too mild and ineffective, while for others they were excessive and potentially fuelling illicit trade.

Table 4.10 – Tax authorities' outlook on cross-product substitution and related policy priorities

A) Perceived magnitude of the tax-driven substitution problem (number of MS)

	MJP	MDP	MNP	NP	DK
Fine-cut tobacco	2	9	7	5	1
Cigarillos	3	2	8	10	1
Cigars	1	1	4	17	1
Pipe tobacco	0	2	3	18	1
Water-pipe tobacco	0	2	5	15	2
Heated tobacco products*	0	4	5	5	6
Electronic cigarettes	2	3	4	5	9

B) Perceived importance of policy priorities concerning FCT taxation (number of MS)

	MJI	MDI	MNI	NI	DK
Neutralise 'tax-driven' substitution	7	11	4	1	1
Reduce the gap with cigarettes for public health purposes	9	10	5	0	0
Preserve the competitiveness of FCT manufacturers (including SMEs)	2	5	6	10	1
Maintain FCT as a 'buffer' against illegal alternatives	3	7	4	9	1

Source: *Results from the consultation of tax authorities of the MS (24 respondents).*
Legend: *Table A: MJP=major problem, MDP=moderate problem, MNP=minor problem, NP=not a problem, DK=don't know; Table B: MJI=major importance, MDI=moderate importance, MNI=minor importance, NI=not important, DK=don't know*
Note*: (*) question applicable only in MS where HTP is commercialised.*

4.4.2 Addressing 'unrecorded' consumption

4.4.2.1 Cross-border flows trends

- **OVERVIEW**

The 'convergence' objective of the EU excise legislation is primarily aimed at preventing the risk that high tax differentials may generate significant flows of products from low-tax to high-tax countries with ensuing distortive effects on competition and ultimately on tobacco control targets and tax receipts of MS. Evidently, such flows are immediately linked, if any, to price differentials rather than tax levels, but we have seen that there is a statistically significant correlation between excise duty levels and prices, so we can

assume that there is an ***impact of taxes on cross-border flows*** mediated by the dynamics of prices.

In Section 4.4.1 we have seen that there has been no convergence in price levels across EU countries in the 2010-16 period, and the that the variability in MS-level WAP has slightly grown. Furthermore, in Section 3.2, we have seen that in the same period the flows of non-domestic legal (NDL) cigarettes (i.e. cigarettes duty-paid in another EU country) have declined in absolute terms (ca. -2.1 bn units) but have increased in relative terms, i.e. the incidence of NDL products on the total cigarettes released for consumption (RfC) in the EU has grown of nearly one percentage point, from 5.3% to 6.2%.

This trend seems consistent with tax authorities' feedbacks. Some 14 MS (out of 24) have affirmed that the EU-driven harmonisation of tax regimes delivered limited or no concrete benefits in terms of reduction of tax-induced cross-border shopping (Table 4.11.A). As said, tax-induced cross-border shopping is not only affecting market functioning but can be also a tobacco control concern. Indeed, some two-thirds of public health authorities consulted attributes major importance to adopting stricter measures for reducing excessive cross-border flows (Table 4.11.B).

Table 4.11 – MS tax and public authorities' views on cross-border shopping

A) Perceived benefits of tax harmonisation on cross-border flows according to tax authorities (number of MS)

	H	M	L	N	DK
Reduction of tax-related 'cross-border shopping'	2	5	8	6	3

B) Perceived importance of preventing excessive cross-border shopping according to public health authorities (number of MS)

	MJI	MDI	MNI	NI	DK
Importance of adopting measures to prevent excessive cross-border shopping	9	4	2	0	0

Source: *Targeted consultation of tax authorities (24 respondents) (A), and public health authorities of the MS (15 respondents) (B).*
Legend: *Table A: H=high, M=medium, L=low, N=none, DK=don't know; Table B: MJI=major importance, MDI=moderate importance, MNI=minor importance, NI= not important, DK=don't know.*

The results of the ***econometric analysis*** found a weak but coherent cross-effects between the demand of tobacco (all products) in one MS and price levels in all the other EU countries. Furthermore, we have examined econometrically the possible determinants of NDL, and we have found the amount of NDL is statistically correlated with the price differential that exist between two countries. In particular we have estimated that an increase in the price difference (measured at WAP level) of 10% can lead to an increase of existing NDL flows of 2.8%. Unsurprisingly, geographical contiguity between two MS matters, and more generally the geographical distance is inversely correlated to the volume of flows. It is also statistically probable that an increased price differential triggers a cross-border flow where it did not exist before. The estimated probability is however fairly low.

More generally, it can be noted that, albeit coefficients are statistically robust, the estimated magnitude of effects is rather low in absolute terms, suggesting that other major factors are at play. First of all, not all the NDL flows are price-driven, since there are NDL flows also between countries where the WAP of origin is higher or comparable to the WAP of destination. These flows cannot be obviously attributed to price (hence tax) differentials but possibly to travelling for other reasons such as tourism, business or other purposes.

In the next section, we try to estimate the actual flows of economic-driven NDL filtering out all such cases where there seems to be no or too narrow margin of profit to justify cross-border travelling for the sole purpose of tobacco purchasing. In this respect, it is useful to repeat that even when the WAP at origin is lower than the WAP at destination, this is not sufficient to assume market functioning distortions or adverse effects on tax revenues since - as discussed – cross-border purchases for private consumption are legitimate in the Single Market.

- **ESTIMATED ECONOMIC-DRIVEN NDL TRENDS**

In the Table 4.12 overleaf, we summarise the average size of NDL flows between individual MS in the 2010-2016 period (see Section 3.2.2 for sources and methodological details). However, the purpose of this Section is to estimate which share of these flows is possibly driven by economic incentives – i.e. price differences that are sufficiently high to justify not only purchases for private consumption by tourists or travellers, but also to ensure an economic profit in case of illicit reselling or travelling for the sole purpose of buying cigarettes. In this respect, it is important to highlight that no valid source of data is currently available to estimate the final use of cigarettes moved cross-border, and in particular the share of cigarettes eventually intended for legitimate own consumption against those that are instead diverted to illicit reselling. So, the concept of 'economic-driven flows' elaborated in this Study designates the subset of the total flows that contain also, but not only, products illicitly resold, while excluding the subset of those that are certainly for private use because their price in the country of purchase is similar or higher than in the country of destination. The analysis has been done in three steps:

(1) in the first step we have filtered out all flows where the WAP at origin is higher than the WAP at destination;
(2) then we have 'normalised' WAP differences between countries using purchasing power parity (PPP) coefficients of both the MS of origin and of destination. This way, we have comparable estimates of the 'pull' and the 'push' factors[250] behind cross-border flows between two countries, and we have retained such WAP differential as the independent variable of the analysis;
(3) finally, we have applied a bottom-line threshold to the above 'normalised' WAP differential, to exclude all cases where such differential seems too low to allow an economic profit (including the possible paid-back of travelling for the purpose of buying cigarettes). In the simulation we have set the threshold at EUR 75 (PPP) per 1000 cigarettes, in 2010, adjusted for inflation to EUR 80 (PPP) in 2016. This is tantamount to some EUR 1.5 of difference (hence economic gain) per a 20 sticks packet. The threshold also roughly corresponds to the median value of the WAP differentials distribution.

Evidently, the method implies a certain degree of subjectivity, especially in the setting of the bottom-line threshold (step three). Moreover, it is important to highlight that the calculated indicator does not necessarily correspond to flows exceeding travellers' allowances and/or cigarettes moved for reselling purposes since even in the presence of a high WAP differential the flows between MS may still be partly explained by tourism and travelling for other purposes. So, the estimated economic-driven NDL should be rather considered as a proxy indicator of the maximum (but not actual) amount of 'illicit' NDL, which also corresponds to the share of total NDL that could be tackled, in principle, by tax convergence policies.

[250] In fact, the economic incentives for the illicit reselling of NDL products contain both a 'pull' factor – the extent of monetary saving for the buyer, in relation to price levels in his country measured in PPP terms, and a 'push' factor – the extent of the monetary profit for the seller, in relation to price levels in his country measured in PPP terms. Evidently when the cross-border purchase is for own consumption, there is no 'push factor.

The results of our analysis of the economic-driven NDL flows are summarised in Table 4.13 further below. In particular:

- the economic-driven NDL flows, as defined in our simulation, account for nearly 70% of the total estimated NDL in the EU. This figure expectedly exceeds the SUN-based estimates on the share of NDL possibly moved illicitly (i.e. exceeding travellers' allowances), since our indicator includes products purchased with an economic advantage but not necessarily in violation of the 'private consumption' criteria.
- In the 2010-16 period, the economic-driven NDL flows have possibly reduced by about one billion units, which correspond to about 4.5% of the total. However, in the same period the total release for consumption (RfC) of cigarettes in the EU have decreased by some 22.3%, so in relative terms the share of economic-driven NDL flows have increased. In particular, it is estimated that it went up to from 3.8% to 4.6% of RfC in the period.
- We have estimated also the monetary value attached to these trends. Overall, in the country of origin of NDL, the value of outflows increased from ca. EUR 3.1 bn to ca. EUR 4.1 billion. This corresponds to a 'virtual' loss in the market of destination from EUR 5.9 billion in 2010 to EUR 7.4 billion in 2016. Roughly speaking, the EU market value 'loss' due to economic-driven NDL flows increased by 21% in the period from EUR 2.8 billion to EUR 3.4 billion.
- MS-level estimates have to be taken with caution given the numerous assumptions and limitations described. In general, it can be observed that DE, FR and UK are the major recipients of products flows, while CZ, PL, ES and to a less extent RO are the main sources of them. But if compared to country's domestic RfC, the inflow of economic-driven NDL seems significant also in IE, while LU and EE emerges as major sources of outflows.

Table 4.12 – Average annual flows of duty-paid NDL cigarettes between MS (2010-16, million units)

from / to	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK	TOT
AT	-	2.1	9.0	0.6	454.9	69.0	0.2	-	10.0	10.9	0.2	2.2	32.0	607.7	0.0	18.3	0.3	0.4	-	-	0.7	26.5	1.4	28.9	-	703.6	60.7	0.6	**2040**
BE	2.4	-	36.5	-	4.1	36.4	1.3	-	13.5	37.4	0.5	102.5	2.0	1.5	1.5	30.8	1.7	311.0	0.5	1.6	91.5	88.1	15.2	34.6	0.5	2.9	3.0	9.4	**830**
BG	0.8	0.6	-	0.6	1.8	2.5	0.7	-	8.8	5.8	-	1.6	0.4	0.4	-	1.1	-	-	-	-	0.3	0.6	-	3.8	-	0.3	0.2	1.1	**31**
CY	-	0.2	1.8	-	0.2	0.4	-	-	3.2	0.6	-	0.2	-	-	-	0.4	-	-	-	0.2	0.2	0.2	-	1.6	-	-	-	0.9	**10**
CZ	4.1	2.3	4.5	0.1	-	12.3	1.0	0.3	3.6	5.1	0.6	1.9	5.5	4.4	0.3	5.8	3.2	1.1	1.0	0.1	1.6	38.1	1.1	3.7	0.8	1.7	23.9	0.4	**129**
DE	286.9	27.0	88.2	2.0	5377.0	-	20.9	3.5	147.6	234.8	1.3	28.4	116.0	160.5	0.8	98.0	28.2	423.3	6.9	1.9	84.2	6750.4	31.4	128.2	16.9	130.9	56.6	5.2	**14257**
DK	2.1	1.8	7.7	0.1	4.4	27.5	-	0.8	5.0	8.4	2.6	3.8	1.1	4.1	-	6.2	6.2	0.6	0.7	0.1	3.0	25.0	2.2	6.0	66.6	0.2	0.2	1.4	**188**
EE	0.0	-	0.5	-	0.0	0.2	0.0	-	-	0.7	3.5	0.0	-	-	0.0	0.0	2.1	-	5.0	0.1	0.1	0.5	0.1	-	0.2	-	0.1	0.0	**13**
EL	1.8	1.8	41.4	5.3	0.9	4.8	0.7	0.5	-	3.2	1.7	3.2	1.1	2.3	-	12.4	0.3	0.7	0.3	0.5	1.9	4.4	0.2	13.4	2.9	-	4.7	3.0	**113**
ES	6.9	5.7	7.0	0.9	7.9	18.6	2.8	-	3.2	-	1.4	32.8	0.5	1.6	0.5	39.1	1.1	2.0	0.2	0.4	6.8	9.3	38.1	29.9	3.3	2.2	0.5	4.4	**227**
FI	1.0	1.7	1.1	0.2	3.0	6.7	3.1	255.5	2.0	6.7	-	1.7	0.7	1.5	0.5	3.4	3.1	0.9	5.9	0.3	2.1	6.1	1.1	1.5	8.3	0.4	0.4	2.1	**321**
FR	11.5	1367.4	70.1	1.9	53.5	420.1	5.8	9.2	70.4	2265.2	2.0	-	15.7	28.6	4.4	398.7	25.7	903.5	2.8	5.0	69.1	294.0	355.2	566.1	4.8	19.9	11.7	31.0	**7013**
HR	0.4	-	-	-	1.1	2.6	-	-	-	-	1.1	-	-	-	-	1.2	-	-	-	0.1	0.4	-	-	0.4	-	4.4	0.4	-	**12**
HU	13.5	1.1	1.1	-	6.6	8.5	0.5	-	0.5	0.9	0.7	2.2	1.7	-	0.1	4.2	0.1	0.1	-	-	1.5	4.2	0.5	22.2	0.7	2.0	15.2	1.9	**90**
IE	5.5	7.0	6.1	0.5	10.1	26.8	8.2	2.7	4.4	120.5	1.0	17.5	3.5	33.0	-	26.2	45.3	2.0	8.5	1.7	12.2	155.9	26.0	74.8	5.3	0.9	15.0	130.6	**751**
IT	17.0	8.9	26.4	2.8	17.5	69.8	5.2	1.9	33.6	96.8	1.3	84.2	18.8	16.7	1.9	-	5.4	12.1	2.6	2.8	10.4	48.7	14.8	100.8	6.5	157.5	23.8	12.0	**800**
LT	0.1	0.1	0.1	-	0.3	1.3	0.2	0.7	0.2	0.2	0.1	0.3	0.2	0.1	0.1	0.4	-	-	3.1	0.0	0.2	3.0	0.1	-	0.3	0.0	0.1	0.5	**12**
LU	0.7	19.2	1.4	0.6	-	10.3	-	-	-	2.1	-	17.7	0.6	0.8	-	2.1	-	-	-	0.6	3.1	1.2	8.5	0.9	-	0.5	-	0.6	**71**
LV	0.0	-	-	-	0.0	0.2	-	1.5	-	0.1	0.1	0.3	0.0	-	0.0	0.2	4.0	-	-	-	0.1	0.9	-	0.0	0.2	-	-	0.3	**8**
MT	0.4	0.1	0.9	0.1	0.1	0.5	-	-	0.2	0.8	-	0.2	-	0.3	0.1	2.0	-	-	-	-	0.3	0.3	0.1	0.2	0.1	0.2	-	0.1	**7**
NL	26.2	308.3	32.7	2.8	30.8	298.1	23.9	4.2	23.8	120.5	5.9	155.8	11.3	30.9	14.3	146.1	10.3	42.7	4.3	4.0	-	96.0	29.3	35.4	22.2	16.1	6.1	149.2	**1651**
PL	2.9	2.8	11.4	0.1	11.4	66.1	3.7	0.5	1.9	5.6	0.1	10.9	1.5	2.3	1.3	6.3	2.5	0.6	0.7	0.1	4.8	-	0.2	1.7	4.9	0.5	4.9	7.0	**157**
PT	1.4	2.9	-	-	0.8	2.0	0.5	-	-	44.0	0.5	6.3	-	-	1.1	5.0	-	1.7	0.3	-	1.8	-	-	0.9	1.0	-	-	1.4	**72**
RO	1.9	0.1	2.8	0.2	-	3.3	-	-	1.8	12.5	-	1.6	-	2.6	-	5.4	-	-	-	1.3	0.2	1.0	-	-	5.5	3.3	0.6	0.4	**44**
SE	1.9	1.0	2.1	0.2	5.0	11.1	27.6	4.3	5.4	10.9	7.0	5.0	2.0	2.3	0.3	6.1	4.4	0.8	6.9	0.2	4.3	83.2	1.4	7.2	-	0.5	0.9	3.2	**205**
SI	5.2	0.1	1.1	-	2.3	3.5	0.2	-	0.2	1.1	-	0.3	22.2	2.1	-	4.3	0.3	-	-	-	0.1	2.9	-	1.7	0.1	-	1.2	0.2	**49**
SK	4.3	-	1.4	0.0	19.6	2.4	-	-	0.1	0.4	-	0.4	0.5	17.9	-	0.1	-	-	-	-	0.2	3.5	-	0.1	0.0	0.3	-	0.3	**52**
UK	6.6	46.9	62.0	99.0	104.7	46.1	12.9	5.1	108.2	887.7	5.6	39.6	7.3	81.1	52.6	59.9	149.8	8.6	18.8	27.9	39.7	1222.1	89.1	354.7	14.7	2.8	36.8	-	**3591**
TOT	**406**	**1809**	**417**	**118**	**6118**	**1151**	**119**	**291**	**448**	**3883**	**37**	**521**	**244**	**1003**	**80**	**884**	**294**	**1712**	**69**	**49**	**341**	**8866**	**616**	**1419**	**166**	**1051**	**267**	**367**	**32745**

Source: *Author's estimates based on project SUN raw datasets, adjusted in accordance to the methodology described in Section 3.2.2.*
Legend: *NDL=non-domestic legal cigarettes.*

Table 4.13 - Estimated volume and value of economic-driven NDL flows in MS (2011-16)

MS	Economic-driven NDL inflow				Economic-driven NDL outflow				Var. 2010-2016	
	Vol. 2010	Val. 2010	Vol. 2016	Val. 2016	Vol. 2010	Val. 2010	Vol. 2016	Val. 2016	IN	OUT
AT	521	99	153	36	23	4	44	10	*-368*	*21*
BE	173	39	135	40	46	10	38	11	*-38*	*-8*
BG	-	-	-	-	247	28	583	74	-	*336*
CY	3	1	-	-	201	33	32	7	*-3*	*-169*
CZ	-	-	-	-	4,852	664	5,830	964	-	*979*
DE	12,745	2,929	10,473	2,881	24	6	67	19	*-2,272*	*43*
DK	55	13	52	14	5	1	17	4	*-3*	*11*
EE	-	-	1	0	230	25	294	52	*1*	*64*
EL	-	-	97	19	329	52	207	41	*97*	*-122*
ES	-	-	15	3	3,745	624	3,909	884	*15*	*165*
FI	221	48	303	101	-	-	9	3	*81*	*9*
FR	4,102	1,108	5,195	1,757	18	5	67	23	*1,093*	*49*
HR	-	-	-	-	101	12	104	20	-	*3*
HU	-	-	1	0	834	92	283	52	*1*	*-551*
IE	1,060	449	690	379	-	-	-	-	*-370*	-
IT	354	72	19	5	76	15	493	120	*-334*	*418*
LT	-	-	-	-	178	19	274	44	-	*96*
LU	-	-	4	1	526	95	882	203	*4*	*356*
LV	-	-	-	-	39	4	72	11	-	*33*
MT	2	0	4	1	43	8	11	3	*3*	*-33*
NL	633	150	419	131	54	13	67	21	*-214*	*13*
PL	-	-	-	-	9,197	1,067	6,542	1,043	-	*-2,655*
PT	5	1	-	-	679	117	400	90	*-5*	*-279*
RO	-	-	-	-	1,134	136	1,474	256	-	*340*
SE	104	26	143	43	7	2	10	3	*39*	*4*
SI	-	-	-	-	226	30	38	7	-	*-188*
SK	-	-	-	-	190	25	305	48	-	*115*
UK	3,223	1,010	4,466	2,038	199	62	118	54	*1,243*	*-81*
									Var. NDL	***Var. RfC***
EU TOT	23,200	5,944	22,170	7,449	23,200	3,149	22,170	4,068	-1bn	-121bn
In % of RfC	3.8%	5.0%	4.6%	6.3%	3.8%	2.6%	4.6%	3.4%	-4.5%	-22.3%

Source: *Author's estimates based on project SUN raw datasets and EDT (for RfC and WAP).*
Legend: *Vol.=volume expressed in million cigarettes, Val.=value expressed in million EUR; Var.=variation expressed as the difference between 2016 and 2010 in absolute terms (volume of units) or relative terms (percentage points); RfC=releases for consumption (of cigarettes).*
Note: *In the bottom right square the variation (2011-16) of the economic-driven NDL volume is compared to the variation in the same period of the total RfC in the EU, both in absolute and in relative terms (incidence).*

- **IMPACT ON TAX RECEIPTS**

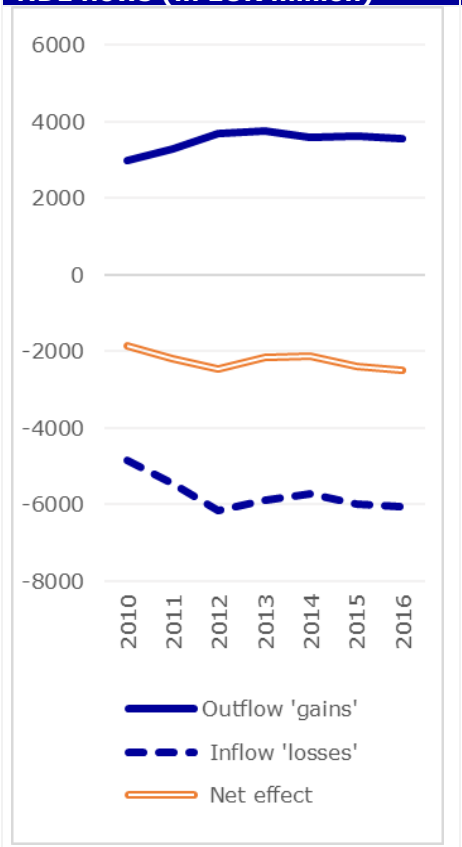
The estimated impact on tax receipts can be inferred by the above estimates on the size of flows calculating on one side the extra revenues for the country of origin of NDL and on the other side the 'virtual' loss of revenue registered by the country of destination due to the fact that NDL inflows may substitute domestically-taxed products. Inevitably, the provided estimates are somehow speculative not only on account of possible measurement errors in the NDL flows estimates, but also because: (1) the receipts are calculated based on the excise duty yield at WAP level (EDY) but evidently the actual composition of cigarettes subject to NDL flows is unknown; and (2) it is possible that in the absence of an economic incentive to purchase NDL cigarettes consumers would not (entirely) turn to domestically-taxed cigarettes but would search for other less expensive alternatives such as FCT or illegal products, or eventually reduce/quit smoking. In this sense, the actual tax receipts that would be realistically recovered by reducing cross-

border flows are likely lower than the indicated theoretical value. Having said this, the salient results reported in Figure 4.20 below are as follows:

- The extra revenues collected in the MS of origin of flows cannot evidently offset the 'virtual' losses registered in the MS of destination. The EU-aggregated net effects can be estimated close to EUR 2.5 billion of revenue losses, which reduces to EUR 2.3 billion if only the economic-driven NDL flows are considered.
- In the 2010-16 period the net revenue loss has increased both in absolute terms as well as a share of the total receipts collected on cigarettes (from 2.6% to 3.4%).
- Country-wise, for 16 out of 28 MS the net impact on tax receipts (i.e. considering both inflows and outflows) seems limited and comprised between -5% and +5% of the total receipts from cigarettes (in 2016). For five MS, namely IE, UK, FR, FI and DE, the revenue loss incidence is more significant. Conversely, seven MS namely, LU, CZ, EE, PL, LT, ES and RO, seemingly register a considerable extra revenue in connection with cross-border flows.

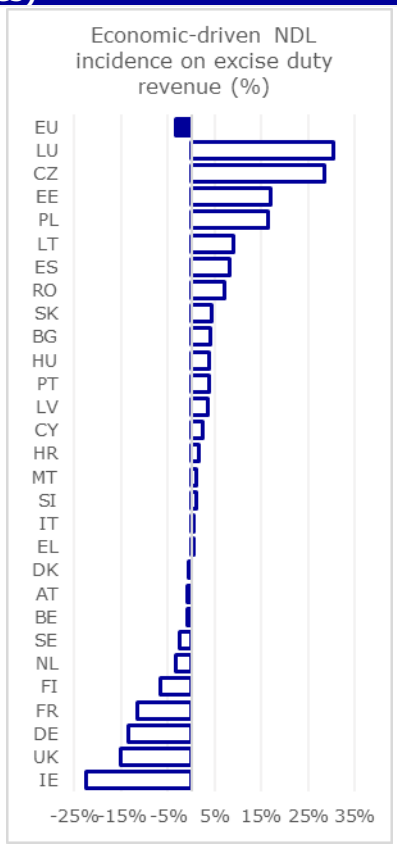
Figure 4.20 - Estimated impact of NDL flows on tax receipts (2010-16)

A) EU-aggregated revenue 'gains' and 'losses' linked to NDL flows (in EUR million)



B) MS revenue impact of total and economic-driven NDL flows (in EUR million and in % of MS excise receipts from cigarettes)

MS	TOT	Econ. -driven
AT	-190	-15
BE	258	-17
BG	49	49
CY	5	4
CZ	586	543
DE	-1711	-1639
DK	-6	-6
EE	29	31
EL	23	13
ES	557	539
FI	-57	-58
FR	-1490	-1111
HR	28	9
HU	58	27
IE	-191	-220
IT	51	66
LT	24	24
LU	177	109
LV	8	7
MT	3	1
NL	-182	-64
PL	646	645
PT	50	51
RO	156	145
SE	-24	-22
SI	58	4
SK	28	29
UK	-1434	-1480
EU	**-2,491**	**-2,335**



Source: *Author's estimates based on project SUN raw datasets and EDT.*
Legend: *NDL=non-domestic legal cigarettes*

4.4.2.2 Illegal products flow trends

➢ **OVERVIEW**

The demand for illegal products is evidently triggered by an economic advantage (black market products are less expensive) but has a peculiar relation with price levels. For the overwhelming majority of national tax authorities consulted, the price difference between

legal and illegal products is the key enabler of illicit trade but many recognise that its magnitude is also due to other factors like the 'permeability' of the borders, an insufficient culture of legality among consumer and, to a smaller extent, corruption (see Table 4.14.A). In this sense enforcement capacity, the social acceptability of illicit trade and, not least, the geographical position and distance from the 'hubs' of illicit trade play a major role.

For the analysis of the demand, it is unfeasible to treat illegal products as just another option for consumer choice, first of all since there is practically no systematic information on the price of black market products and, secondly, because according to own tax authorities and industry assumptions such price is tagged to the price of legal products. In other words, we can assume that when the price of legal products change, the price of black market products changes as well, remaining in a range of an estimated 50%-60% of the price of legal products.[251] It derives that tax policies aimed at reducing price differential between legal and illegal products are not effective solutions, and this seems confirmed by the limited influence that the price levels in the countries of origin of illicit trade plays on MS decisions regarding tax levels (see Table 4.14.B).

Table 4.14 – MS tax authorities' views on illicit trade drivers and the influence of prices on fiscal policy

A) Perceived importance of the underlying drivers of illegal tobacco consumption (number of MS)

	MJI	MDI	MNI	NI	DK
High prices	16	5	2	1	0
Corruption	1	4	3	8	6
Permeability of borders	6	6	5	3	2
Insufficient consumers' education	3	7	4	5	3

B) Influence of price levels in non-EU countries on domestic tax policy (number of MS)

	VH	H	I	L	VL	DK
Influence of tax and price levels in non-EU countries (of origin of illicit trade of cigarettes)	2	1	6	4	9	0

Source: *Targeted consultation of MS tax authorities (24 respondents).*
Legend: *Figure A: MJI=major importance, MDI=moderate importance, MNI=minor importance; NI=not important, DK=don't know; Figure B: VH=very high, H=high, I=intermediate, L=low, VL=very low, DK=don't know.*

The above considerations are coherent with some researchers' conclusions, based on the outcome of the PPACTE survey, who could not find any significant association between illicit trade and the price of cigarettes. On this basis, they suggested that '*the supply of illicit tobacco, rather than its price, is a key factor contributing to tax evasion*'.[252] In the framework of the Study, we have run some specific regressions to further test this relation. Using our SUN-based adjusted estimates of illegal products consumption, we have investigated the impact of a series of possible determinants, including various price indexes, geographical factors, income and socio-demographic factors etc. Various models were used to this end, which returned somehow different but consistent results. In particular, a positive ***correlation between cigarettes price level and the demand for illegal products*** was found, such that a price increase of 1.0% can be associated to an increase of illegal cigarettes consumption between 1.0% and 1.4%. The impact of FCT price increase seems milder (and not statistically robust), i.e. around 0.3%-0.4%. It is important to underline that such impact can be significantly mitigated and possibly ***neutralised by a concomitant increase of income***. The econometric analysis

[251] Considering that taxes represent about three-quarters of the final price of cigarettes, in the absence of precise measurements it seems realistic that it is the opportunity created by the legal market prices to drive the price of illegal products rather than their rather marginal endogenous costs (i.e. the cost of manufacturing/packing products, shipping to target market, the remuneration of risk incurred by smugglers etc.)
[252] Joossens L, Lugo A, La Vecchia C, et al. Tob Control 2014;23:e17–e23.

indicates that an increase of 1% in income levels is associated to a reduction of the demand of illegal cigarettes of 0.9%-1.8%. This is perfectly coherent with the fact that the demand for illegal products is linked to affordability, so when legal cigarettes become more affordable there is less need to buy cigarettes on the black market. Not surprisingly, the geographical position of MS matters, but the data available are insufficient for estimating more precisely the elasticity of the demand for illegal cigarettes country-by-country.

At the same time, it can be observed that illicit trade has not grown in the past as the above price and income trends would have predicted, which means that factors other than affordability have contributed mitigating consumers' shift to illegal products. Such factors may evidently include legal and enforcement efforts as well as various broader cultural and/or social factors that can be only generically defined and measured. As described in the econometric model specification (see Volume 3), we have estimated the decline of illicit trade due to systemic factors unrelated to affordability by means of a linear trend model, which resulted to fit with the data better than any tested model based on constant percentage decline. The combination of this 'systemic' decline with the above elasticity estimates suggests that the ***contribution of tax policies*** to determining the magnitude of illicit trade has been a moderate one, when it is compared to other factors. In fact, in the 2011-16 period, the potential increase in illicit trade connected to price trends and net of the effects of income growth, equalled to some +3.9 bn pieces[253], and appears substantially reversed by the estimated drop of -10.8 bn pieces associate to the aforementioned systemic factors, resulting in an overall decline of ca. 7 bn pieces. In other words, non-price (hence tax) related factors seemingly prevail on price levels in determining the magnitude of illicit trade of cigarettes. As a consequence, the EU excise legislation can generically aim at supporting the fight against illicit trade of tobacco and tax fraud in the EU but, in practice, it appears to have limited leverage on it, and MS situations differ greatly.[254]

- **THE IMPACT OF EU MINIMA ON PRICE DIFFERENCE WITH NON-EU COUNTRIES**

Most of the authorities consulted indicate the Eastern border of the EU (Russia, Belarus, Ukraine, Moldova) and non-EU Western Balkans countries (Serbia, FYROM, Montenegro) as the major origins of illegal cigarettes.[255] Since many of the MS directly affected by EU minima are also geographically located in this area, it can be relevant to compare how their price levels have evolved overtime in comparison to their non-EU neighbours and whether EU minima have influenced these trends. The Figure 4.21 below shows ***average price trends*** in four possible source-countries of illicit trade, namely Russia, Belarus, Ukraine and Serbia and in neighbouring MS.[256] As can be seen, in most cases there have been limited or no convergence in price levels between the non-EU countries examined

[253] The point estimates elasticities for the demand of illegal products used for this simulation are: 1.07 (cigarettes price elasticity), 0.39 (FCT price elasticity) and -1.88 (income elasticity). The income trend is based on Eurostat GNI data, while the price trends are those reported in Section 3.3. The growth rate is measured in logarithmic terms.

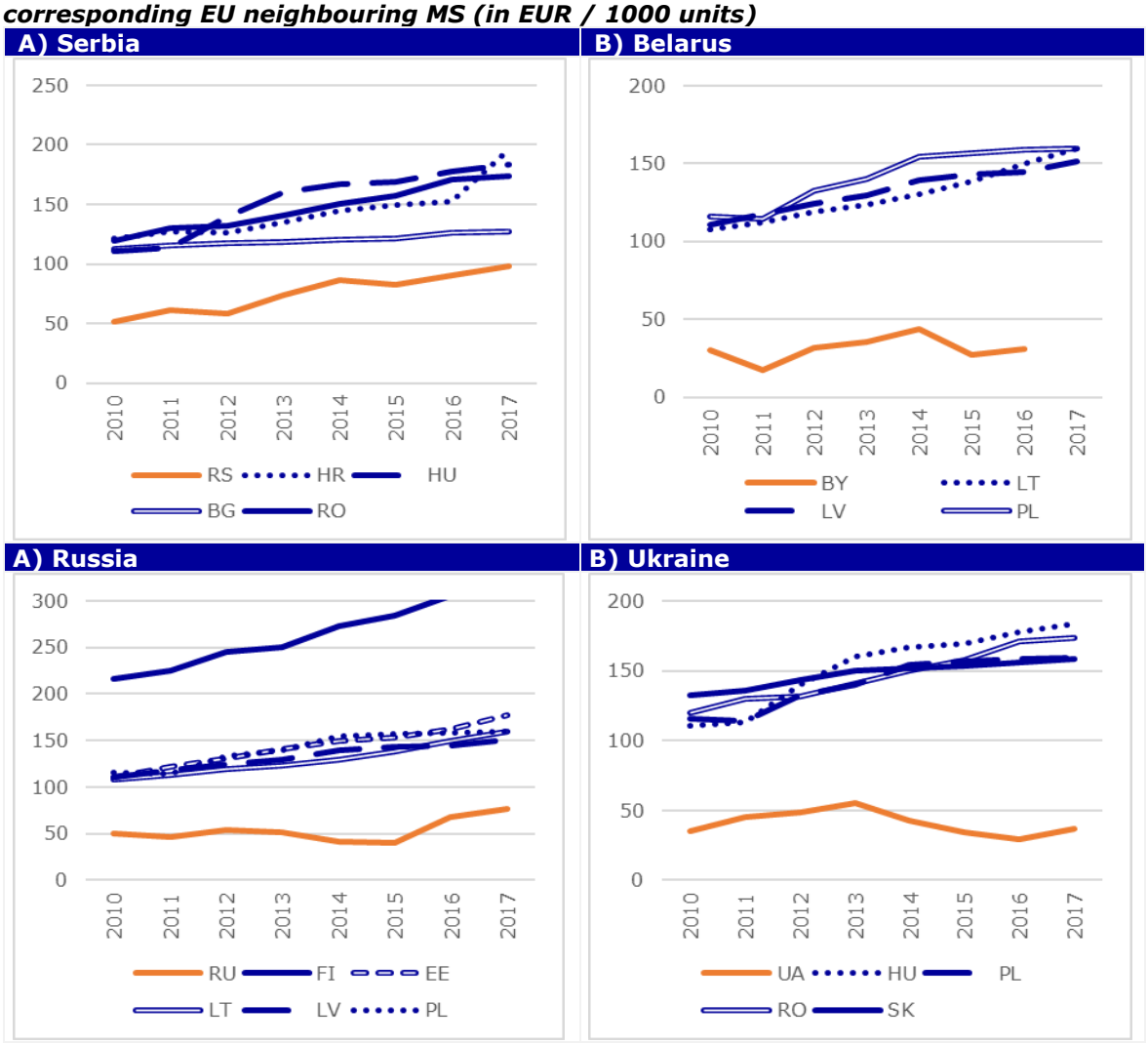
[254] This is consistent with the text and the underlying intervention logic of the Directive. The objectives and provisions of the Directive aimed at harmonising tax regimes, as well as those oriented to protect public health have no direct link, in terms of intervention logic, to the consumption of products that are outside the (legal) tax framework. In fact, the reference to fraud and smuggling in Recital #15 of the Directive is put down in connection to "*a certain degree of convergence between the tax levels*", so it evidently relates to the risk of cross-border flows of NDL duty-paid in another MS for illicit reselling purposes, possibly caused by "*considerable differences between MS*". Instead, there are no specific objectives concerning illegal products of non-EU origin (including 'illicit whites') or illegally manufactured in the EU.

[255] In line with OLAF, FRONTEX and other stakeholders' reports. Other source-countries mentioned by only one or two MS includes China, UAE, India and Pakistan.

[256] The price data for the non-EU countries examined are drawn from Euromonitor International (converted in EUR based on ECB exchange rates). For other possible source-countries of illicit trade (e.g. Moldova, FYROM) price data were not available.

and their EU neighbours. In the case of Ukraine and Belarus the price gap has seemingly widened (when converted in EUR) and their price levels currently account for some 20% of the average WAP of their EU neighbours.[257] In Russia, after a few years of stagnation, price levels have risen rapidly in 2015-17 so overall the price ratio with EU neighbours is overall stable below 50%. Serbia represents a notable exception: prices have steadily increased between 2010 and 2017 and the price gap with EU neighbours has reduced, possibly as a result of the fiscal policies enacted in the framework of Serbia negotiations for EU accession.

Figure 4.21 – Cigarettes price trends in selected non-EU countries and in the corresponding EU neighbouring MS (in EUR / 1000 units)



Source: *Authors' elaboration of EDT and Euromonitor International price data.*
Legend: *RS= Serbia; BY=Belarus; RU=Russia; UA=Ukraine.*
Note*: For EU countries figures refer to WAP, whereas for non-EU country, figures refer to simple average of the price distribution of cigarettes (the data did not allow to calculate the WAP).*

To estimate the ***possible effects of the Directive*** on these trends we have developed a simple counterfactual scenario, which consisted in assuming that in the absence of EU minima the WAP levels would have grown like in the other EU countries not directly

[257] It is important to underline that in the case of Ukraine and Belarus (and also to a smaller extent also for Russia and Serbia) the local currency have severely depreciated in the period considered. In local currency, and in relation to domestic affordability, the price of cigarettes in these countries have significantly increase – in the case of Ukraine likely in connection with the commitment of the Association Agreement established with the EU. This trend was particularly steep in the past few years, as confirmed by Ukrainian public health experts met in the framework of this Study.

affected by EU minima. Then, we have calculated the hypothetical price ratio between the selected non-EU countries and their EU neighbours, and finally compared this scenario to the actual price ratio. The results of the analysis indicate that:

- with the only exception of BG, in all concerned MS the EU minima have possibly widened the price gap with non-EU neighbouring countries;
- such effect was notable in EE, HR and to some extent HU, moderate in RO and LT, fairly modest in LV and PL;
- if compared to the illegal consumption trends in the same period (and considering the limitations of these estimates), a moderate inverse correlation is found (coefficient: -0.512), indicating a possible unintended influence of EU minima on the illicit trade trends in some MS.

Table 4.15 – Estimated impact of EU minima on price difference with non-EU countries and possible correlation with illicit trade

MS	Non-EU neighbour	Price ratio 2010	Price ratio 2017	Scenario 2017 w/out EU minima	Scenario difference (in pp)	Est. trend in illegal products, CAGR 2010-16
BG*	Serbia	88%	77%	77%	0%	-23%
EE	Russia	69%	43%	53%	-10%	-7%
HR	Serbia	46%	50%	63%	-13%	9%
HU	Serbia	81%	54%	69%	-15%	-14%
	Ukraine	30%	20%	25%	-5%	
LT	Belarus	28%	19%	22%	-3%	-16%
	Russia	69%	48%	54%	-6%	
LV	Belarus	29%	20%	22%	-2%	-11%
	Russia	70%	50%	53%	-3%	
PL	Belarus	28%	19%	21%	-2%	0%
	Russia	69%	48%	51%	-3%	
	Ukraine	33%	23%	24%	-1%	
RO	Serbia	85%	57%	63%	-6%	-3%
	Ukraine	31%	21%	23%	-2%	

Source: *Authors' elaboration of EDT and Euromonitor International price data. The estimates on illegal cigarettes consumption trends are based on SUN raw dataset (see Section 3.2.2 for the methodology).*
Legend: *pp=percentage points; CAGR=compounded annual growth rate.*
Notes*: The counterfactual scenario is developed assuming that in the absence of EU minima the WAP would have increased at the same pace of other EU MS not affected by EU minima (i.e. 3.8% year-on-year). This way, we obtained a hypothetical WAP for year 2017 and a hypothetical price ratio with non-EU neighbours and we could compare it to the actual price ratio registered in 2017. (*) In BG, the WAP growth rate was lower than 3.8% annually, so no impact of EU minima is assumed. FI and SK are also bordering the above non-EU countries but since they were not affected by EU minima, they are excluded from the analysis.*

- **IMPACT ON TAX REVENUES**

In this final section, we estimate the ***magnitude of the tax revenue losses*** possibly caused by illegal products trade and consumption. As discussed, this should be intended as an unintended side effect of the excise legislation and not as an effectiveness issue in strict sense. In fact, the policy measures to address this issue fall outside the scope of the Directive and regard e.g. control, enforcement, consumers education, and possibly the establishment of 'tax approximation' objectives in the bilateral cooperation agreements with source-country of illicit trade, as done for instance with Moldova and Ukraine.[258]

[258] See the Association Agreement between the European Union and its Member States, of the one part, and Ukraine, of the other part. http://trade.ec.europa.eu/doclib/docs/2016/november/tradoc_155103.pdf

We have estimated the tax losses by calculating the hypothetical revenue yield of illegal products if they were taxed in the country of consumption at the prevailing rates (at WAP level). The baseline figures on the size of the illegal market of cigarettes and bulk tobacco are those laid down in Section 3.2.2. It is important to further highlight the speculative nature of the exercise. Were illegal products not available it is implausible that the totality of consumers would turn to corresponding legal products. More likely, part of them would turn to other less expensive products - including NDL, or substitute tobacco products - or possibly reduce/quit smoking. So, the 'true' revenue loss is probably smaller than the virtual one reported in Table 4.16, which has essentially an analytical purpose. It should be also noted that for many countries there are no estimates available on the size of the illegal bulk tobacco market and that where these exist, they sometimes appear implausible since they would imply that the loss caused by bulk tobacco is greater than that caused by illegal cigarettes. The key findings of the analysis are as follows:

- In the 2010-16 period, the estimated revenue losses due to illegal cigarettes trade in the EU can be estimated at nearly EUR 6.7 billion / year, on average. Apparently, the loss has expanded until 2014-15 then started declining, but data on trends need to be taken with extreme caution.
- Overall, this corresponds to an incidence of some 9.1% of the total EU excise revenue from cigarettes. Such incidence is higher in BG, LV, LT (in excess of 20% of the excise revenue from cigarettes) and more limited in LU, SK, and PT (2% or less). In CY, EL, MT, SK and the UK the incidence has soared steeply in the period examined, while in BE, BG, LT and DK it has seemingly declined.
- These estimates do not always correspond with MS own estimates of the tax revenue loss, confirming the existence of a notable margin of error in this area. In two cases, the own country estimates are largely in line with our estimates; in another couple of cases the losses estimated by tax authorities are a bit higher; while in at least two other countries our SUN-based estimates appear totally out of scale with MS authorities' ones.

Table 4.16 – Estimated tax revenue loss caused by illegal products

MS	ED 'loss' from cigarettes (average 2010-16, EUR million)	Incidence on ED revenues	Estimated trend 2010-16	ED 'loss' from FCT (average 2010-16, EUR million)	TOTAL estimated ED 'loss'
AT	60	3.8%	+	..	60
BE	70	4.3%	--	..	70
BG	196	21.0%	--	52	248
CY	6	3.5%	++	..	6
CZ	45	2.6%	-	6	45
DE	660	5.4%	-	..	660
DK	24	2.4%	--	..	24
EE	28	17.9%	=	..	28
EL	397	17.7%	++	241	638
ES	438	6.4%	+	..	438
FI	101	14.0%	-	..	101
FR	1,451	14.9%	=	..	1,451
HR	16	3.1%	..	77	93
HU	45	5.7%	-	39	84
IE	145	14.7%	=	..	145
IT	608	5.9%	=	..	608
LT	73	34.1%	--	..	73
LU	2	0.6%	+	..	2
LV	61	39.6%	-	..	61
MT	8	11.3%	++	..	8
NL	147	8.0%	-	..	147
PL	561	14.1%	=	295	856
PT	25	2.0%	=	..	25
RO	324	18.6%	=	49	373
SE	89	9.7%	=	..	89
SI	23	5.6%	+	8	31
SK	11	1.7%	++	26	37
UK	1,066	10.4%	++	..	1,066
EU	**6,683**	**9.1%**	**=**	**793**	**7,467**

Source: *Authors' elaboration based on various sources: SUN raw dataset (for the estimated volume of illegal cigarettes), EDT (for extrapolation of tax revenue data), Crime&Tech 2017 (for the estimated volume of illegal bulk tobacco in some MS), tax authorities' consultation (for additional estimates of illegal products volume).*
Legend: *ED=excise duty. As concerns trends, the categories are defined as follows: (++) variation in the 2010-16 period exceeding +100%; (+) between 50% and 100%; (=) between -25% and 50%; (-) between -50% and -50%; (--) decline exceeding -50%. (..) data unavailable.*

4.4.3 Public health protection

This Section addresses the evaluation question on the effectiveness of the Directive's provisions, and particularly the EU minima, in relation to the public health protection policy objective of the Directive. This question can be articulated in a set of specific sub-questions, which correspond to the three subsections in which the text is divided, namely:

- Section 4.4.3.1 - *How have the price **accessibility and affordability** of tobacco evolved since the introduction of the Directive?* Affordability is defined as the relation between the overall price levels (proxied by the WAP) and the per capita income.[259] The accessibility indicator regards more specifically the entry price level in the market, and its affordability in relation to income. The importance of these indicators lays in the fact that a decreased affordability / accessibility is an essential condition to see a tax-driven reduction of smoking prevalence.

[259] See, for instance. Blecher EH, van Walbeek CP, "An international analysis of cigarette affordability", Tobacco Control 2004;13:339-346.

- Section 4.4.3.2 - *To what extent **smoking prevalence** has decreased in relation to the fiscal measures adopted (and considering substitution between tobacco products)?* This subsection compares the expected impacts of the Directive with the actual smoking prevalence trends registered *ex post*. Since the Directive does not include specific targets, our analysis includes a reconstruction of the possible expectations that informed the Directive at the time of its adoption. Based on that, we will attempt to disaggregate the impact on smoking prevalence of fiscal measures from that of other policy measures. Finally, we will consider the effects of the substitution between cigarettes and FCT, especially among the young.
- Section 4.4.3.2 - *To what extent substitution with **novel products** is affecting smoking prevalence? The last part* will examine, in the light of the scarce evidence available, the possible effects on smoking prevalence of consumers' switching from conventional to novel products, and particularly e-cigarettes.

The estimated specific contribution of the EU minima to reducing smoking prevalence have been calculated in the following Section 4.5 ('EU added value') by means of a counterfactual scenario analysis. Similarly, an estimate of the social costs savings potentially associated to this reduction of prevalence is provided in the following section.

The findings presented in this section take into account the existing literature on smoking prevalence and the impact of the various factors, as well as the results of the econometric analysis carried out in the framework of this Study. Findings have been constantly compared and triangulated with the information and views gathered from the interviews and the consultation of public health experts and stakeholders

4.4.3.1 Trends in the affordability and accessibility of tobacco products

➢ **DEFINITION OF AFFORDABILITY**

Tobacco consumption is not only sensitive to prices, but also to changes in the level of income. In high income countries, the 'income elasticity' of tobacco has shifted overtime, from a substantially proportionality to a situation where the demand increases less than proportionally than income.[260] As the economy grows, this income effect can be cancelled out by increases in taxes (and prices), which push the demand in the opposite direction. Therefore, understanding the equilibrium between these two effects becomes essential to predict the direction of the demand. In straightforward terms, it is the affordability – i.e. the relation between price and income – more than just the price, to determine tobacco consumption. So, any tobacco control policy should aim at reducing the affordability of tobacco products rather than just increasing prices. This is *inter alia* a fundamental principle laid down in the guidelines for the implementation of article six of the FCTC, which explicitly call on governments to set tax levels taking into account both price elasticity and income elasticity of demand, as well as inflation[261] and changes in household income, since to reduce consumption and smoking prevalence it is necessary to make tobacco products progressively less affordable.

The standard indicator used in the literature to measure the affordability of cigarettes is represented by the ***relative income price*** (hereinafter 'RIP'), i.e. the percentage of per capita gross domestic product (GDP) (as a proxy for disposable income) required to buy

[260] NCI and WHO, 2016.
[261] Inflation represents a problem in itself, as it has the potential to erode the value of a specific tax, leading to lower inflation-adjusted tax revenues and less potential for reducing tobacco consumption and prevalence. For this reasons MS administrations heavily relying on the specific taxation (e.g. the UK) often have mechanisms in place for the automatic adjustment of rates to inflation. Similarly, countries with imported inflation or volatile currency rates might prefer ad valorem taxes because these follow manufacturers' strategies in keeping up with inflation.

100 packs of cigarettes.[262] An increase in the RIP value then roughly indicates that cigarettes have become less affordable. Since then, this indicator has also been endorsed by the WHO and regularly published in their monitoring reports. Cross-country comparisons of cigarette affordability based on simple RIP values would nevertheless require some words of caution since there can be significant inequalities in income distribution and/or in the consumption patterns among different socioeconomic groups between countries that can eventually distort the results.[263] Further comparability issue may also arise in relation to the fluctuations of exchange rates. To address these issues, some alternative affordability indicators have been proposed[264], but they did not really take up due to other types of data consistency issues and other practical difficulties.

The studies based on the RIP have generally shown connection between cigarettes affordability and per capita consumption. In particular, Blecher et al. (2004) estimates the ***affordability elasticity of demand*** equal to 0.53 in high-income countries, meaning that for every 10% increase in the RIP (and thus an equivalent decrease in the affordability of cigarettes) per capita cigarette consumption is likely to decrease by 5.3%.[265]

- **TRENDS IN THE AFFORDABILITY OF CIGARETTES**

Most affordability studies have been based on the most popular cigarette brand price because this the easiest indicator to collect worldwide. However, this indicator is a rather imprecise measure, since in certain MS it coincides with premium brands while in others with low-price ones. Furthermore, it can be 'controlled' by the dominant players and is more prone to fluctuate based on changes in tax policies, so in the EU excise legislation it has been replaced by the more stable and comparable 'weighted average price' (WAP) indicator.[266] When affordability is measured in WAP terms, cigarettes do appear to have generally become less affordable in most MS over the 2008-2017 period, but much less so over the last three years. Actually, since 2014, cigarette affordability has improved in 18 Member States (see Table 4.17. below).

[262] This definition was put forward in the aforementioned seminal study of Blecher EH, *et al*., 2004.
[263] Caution is therefore indeed warranted, as both conditions, to some extent, also apply across the EU.
[264] Examples of alternative indicators include the average or median income of a tobacco consumer or the minutes of work required to purchase a pack of cigarettes by the average consumer proposed by of Blecher EH, *et al*., or a 'Big Mac Index' comparing the price of a pack of cigarettes with the traditional hamburger. The Big Mac hamburger standard was created by The Economist magazine in 1986 as a light approach to determine the magnitude of the deviation from purchasing power parity exchange rates and to predict the direction of change in the exchange rates. Lal A, Scollo M *Big Mac index of cigarette affordability* Tobacco Control 2002;11:280-282.
[265] Blecher EH, *et al*., 2004. Also cited in NCI and WHO, 2016.
[266] For a review of the problems connected to MPPC, see IA 2008, Section 2.2.

Table 4.17 - RIP affordability of cigarette based on WAP prices (2008-17)

MS	2008	2009	2010	2014	2017*	Change 2008-10	Change 2010-17
AT	1.1	1.1	1.1	1.1	1.1	-3%	6%
BE	1.2	1.4	1.3	1.5	1.5	13%	14%
BG	2.8	2.8	4.4	4.1	**3.6**	55%	-18%
CY	..	..	1.4	2.0	1.9	..	37%
CZ	1.5	1.7	1.8	1.9	1.8	24%	0%
DE	1.4	1.5	1.5	1.4	1.4	4%	-5%
DK	0.8	1.0	1.1	1.2	1.1	33%	2%
EE	1.2	2.0	2.0	2.0	**2.0**	72%	1%
EL	1.2	1.3	1.5	2.2	**2.4**	28%	55%
ES	1.1	1.2	1.4	2.0	1.8	32%	27%
FI	1.1	1.2	1.2	1.5	1.7	9%	33%
FR	1.7	1.7	1.8	2.1	**2.0**	5%	13%
HR	1.9	2.1	2.3	2.8	**3.3**	24%	44%
HU	2.0	2.1	2.2	3.1	**2.9**	14%	30%
IE	1.7	2.2	2.3	2.2	1.8	32%	-23%
IT	1.4	1.5	1.5	1.7	1.7	9%	14%
LT	1.3	1.8	2.4	2.1	**2.2**	94%	-10%
LU	..	..	0.5	0.5	0.5	..	9%
LV	1.5	1.9	2.6	2.4	**2.2**	81%	-17%
MT	..	..	2.4	2.2	**2.4**	..	0%
NL	1.0	1.2	1.2	1.5	1.5	21%	18%
PL	1.9	2.2	2.4	2.9	**2.6**	26%	7%
PT	1.8	2.1	2.0	2.5	**2.4**	12%	18%
RO	2.0	2.4	3.9	4.0	**3.6**	95%	-6%
SE	1.2	1.2	1.3	1.3	1.3	9%	0%
SI	1.2	1.3	1.5	1.9	1.7	27%	14%
SK	1.7	2.0	2.1	2.2	**2.0**	27%	-4%
UK	1.8	1.9	2.1	2.7	**2.6**	17%	22%
EU average	**1.5**	**1.7**	**1.9**	**2.1**	**2.0**	**30%**	**10%**

Source: *Author's elaborations based on EDT and Eurostat.*
Legend*: RIP=relative income price; (..) not available data.*
Notes: *RIP= WAP*2/Per capita GDP (in this sense RIP can be also expressed as a percentage, but we opted to display it as an index to avoid confusion with the overtime change that is expressed in %); (*) figure in bold indicates MS where affordability exceeds the standard target of 2%.*

More specifically Table 4.17 shows that:

- The major drops in affordability have been registered in four EU-13 countries[267] (EE, LT, HR and RO) in connection to their accession obligation (the bulk of the drop dates before 2010, except for HR), as well as in EL and ES – two countries that experienced in the period considered a steady increase in levels of taxation combined with an economic crisis and a fall in per capita GDPs.
- Affordability has remained substantially stable since 2008 in DE, AT, IE and SE, very likely in connection with the sustained growth in per capita income associated with less than average tax increases.
- As of 2017, a total fourteen MS have managed to reach the 2.0 RIP standard benchmark[268], which also coincides with the EU average RIP[269].

[267] EU-13 conventionally stands for the European Union Member States that acceded to the EU in 2004-2013 (i.e. the EU-12 and HR).
[268] See: NCI and WHO, 2016, p.120.
[269] Six of these are either not high-income countries or can be considered as 'borderline' high-income countries. Ireland's behaviour has been particularly erratic in this respect as it went well above the 2% threshold for some time, but then GDP per capita has increased so sharply to exceed the increase in cigarette prices. So, affordability suddenly improved. In the Irish case it has, however, to be considered that GDP per capita dynamics may differ from disposable income per capita because of the large presence of multinationals and redistribution of profits abroad. Because of the material distortion by the tax planning activities of foreign multinationals, the 2015 Irish GDP was over 150% of 2015 Irish GNI. To address this, in 2017 the Central Bank of Ireland created the "modified GNI" (or GNI*) as a more appropriate statistic, and the OECD and IMF have adopted it for Ireland.

- Overall, since the introduction of the Directive the average change in RIP level of MS has been lower than in the 2008-10 period (+10% against +30%). This can be explained with the expiration in 2010 of the derogations envisaged under the various acts of accession as well as with the effects of the economic crisis in some MS (this is particularly evident in Eastern Europe and in the Mediterranean). In parallel, this seems also the consequence of the lack of further EU minima increase after 2014 and the fact that in 2017 some MS were still under the 'transitional period'.

➢ **TRENDS IN PRICE ACCESSIBILITY**

A slightly different picture emerges if RIP is calculated based on the lowest market price of cigarette (P_{min} – see Section 3.3.1) rather than on the WAP (see Table 4.18 below). This represents an indicator of cigarettes 'price accessibility'. There are good reasons to believe that for all practical purposes this can be considered as an even better and more realistic affordability indicator for the price-sensitive segment of the population, which is not extensively used in the literature because of the difficulties in gathering the underlying raw data. It can be noted that accessibility RIP values are evidently lower than WAP-based ones and that their trends appear smoother over time – i.e. affordability 'shocks' are less evident and the increase of RIP is more evenly spread in the period considered. According to some literature, this can be associated to possible cross-subsidisation practices put in place by manufacturers, i.e. spreading the effects of tax increases on the entire portfolio to partly offset their effects on the low-segment of the market.[270] At any rate, this did not impede that the increase in the accessibility RIP was overall greater than the WAP-based one (namely 57% against 32% in the 2008-2017 period). More specifically:

- The greatest increases of RIP have been registered again in the Baltic countries, with growth rates exceeding 100% in the overall 2008-17 period. Similarly, the RIP has notably increased (hence accessibility decreased) in EL, ES, RO and HU.
- Conversely, accessibility has seemingly improved in two MS (SE and DE) and substantially plateaued in IE and AT. This is broadly in line with the trends previously observed in relation to the WAP-based RIP.
- In the 2008-2010 period the average RIP increase was, again, greater than in the 2010-17 period, but the difference is smaller than for WAP-based RIP (33% against 19%). After 2014, accessibility has improved in 17 MS and, slightly, at EU average level.
- When measured in accessibility RIP terms, only eight MS have managed to reach the 2% standard threshold of reference. The lowest values are register in DK and SE, a finding that further support the absence of a clear link in the EU region between a mainly specific taxation (as in these two countries) and a more effective control of prices in the low segment of the market

[270] See R. Hiscock, J. R. Branston, A.McNeill, S. C Hitchman, T. R Partos2, A. B Gilmore, *Tobacco industry strategies undermine government tax policy: evidence from commercial data*. Tobacco Control 2018;27,

Table 4.18 - RIP accessibility of cigarette based on 'lowest market price' (2008-17)

MS	2008	2009	2010	2014	2017*	Change 2008-10	Change 2010-17
AT	1.0	1.0	1.0	1.0	1.0	3%	5%
BE	1.0	1.2	1.1	1.5	1.5	8%	37%
BG	2.8	2.3	2.2	3.6	**3.3**	-21%	48%
CZ	1.3	1.5	1.5	1.7	1.6	19%	10%
DE	1.2	1.3	1.2	1.2	1.1	2%	-8%
DK	0.8	0.8	0.8	1.0	0.9	11%	13%
EE	0.8	1.5	1.5	1.7	1.6	101%	9%
EL	0.8	0.9	1.0	2.0	**2.0**	20%	104%
ES	0.9	1.0	1.1	1.8	1.6	21%	44%
FI	0.9	1.0	1.1	1.1	1.3	19%	24%
FR	1.5	1.6	1.6	1.9	1.8	10%	12%
HR	1.3	1.5	1.7	2.0	1.8	29%	7%
HU	1.5	1.6	1.7	2.1	**2.4**	18%	40%
IE	1.5	1.9	2.1	1.9	1.5	41%	-27%
IT	1.2	1.3	1.3	1.5	1.5	6%	20%
LT	0.8	1.2	1.5	1.7	1.8	94%	16%
LV	0.5	1.5	2.1	1.9	**2.2**	302%	3%
NL	0.9	1.0	1.1	1.2	1.3	26%	24%
PL	1.6	1.8	2.0	2.2	**2.4**	27%	21%
PT	1.6	1.8	1.8	2.2	**2.2**	14%	20%
RO	1.8	2.1	2.5	3.5	**3.2**	41%	27%
SE	1.2	1.1	1.0	1.0	1.0	-14%	-5%
SI	1.1	1.1	1.2	1.7	1.5	17%	23%
SK	1.4	1.5	1.8	2.0	1.8	34%	-4%
UK	1.7	1.7	1.8	2.3	**2.2**	7%	23%
EU average	**1.2**	**1.4**	**1.5**	**1.8**	**1.8**	**33%**	**19%**

Source: *Author's elaborations on Euromonitor International price data and Eurostat.*
Legend*: RIP=relative income price; (..) not available data.*
Notes: *Accessibility RIP= P_{min}*2/Per capita GDP (in this sense RIP can be also expressed as a percentage, but we opted to display it as an index to avoid confusion with the overtime change that is expressed in %); (*) figure in bold indicates MS where affordability exceeds the standard target of 2%.*

- **SUMMING UP**

To sum up, cigarette ***affordability has generally decreased*** in the EU over the last decade, although with some notable exceptions. This decreasing trend peaked in the 2008-10 period (i.e. before the introduction of the Directive) then slowed down and even stalled over the last three years, with the biggest decreases seemingly depending on income rather than price factors. The ***decline of accessibility*** (i.e. affordability of cigarettes at the entry-price level) has been even greater and more evenly distributed over the period.

These findings broadly confirm the comments from public health experts and NGO stakeholders that one of the major shortcomings in the EU effort toward curbing smoking prevalence across the EU has been its limited impact in triggering major changes in tobacco affordability and price accessibility levels - except in some Eastern European countries and in the Balkans, and also there for relatively short time periods only. It is generally recognised that the largest impacts have been achieved in countries undergoing parallel income crisis, and this is quoted as an example of what could be achieved if only policymakers were bolder in pushing tax (hence prices) well above income growth rates.

It must be said, that the role played by the MED in raising price accessibility seemed often neglected or at least underestimated by the interviewees. Most of the tobacco control debate is still mostly focused on promoting specific taxation as opposed to ad valorem as the most effective from a public health perspective, but the impacts of, e.g., ad valorem 'plus MED' regime or other forms of MED like the minimum total tax seem not sufficiently studied and discussed. This possibly depends on the limited awareness about both the technical functioning of the MED (which is *de facto* a targeted specific taxation for the low

segment of the market) and the fact that, despite being a voluntary measure, it is since many years a fundamental component of the tax policy of nearly the totality of MS. The lack of in-depth analysis in this area is not totally unexpected, considering that the bulk of the literature on tax-related tobacco control comes from countries where the MED is hardly known (US) or a quite recent measure (UK).

4.4.3.2 Effectiveness of taxation on smoking prevalence

- **EX-ANTE BENCHMARKS, ASSUMPTIONS AND TARGETS**

The Directive does not contain ***explicit and verifiable public health targets***, but estimates of its expected impacts were formulated in its underlying Impact Assessment Report (IA 2008).[271] Assuming that in the 2002-06 cigarettes consumption had declined by 10%, the IA 2008 adopted the same target for the following 5-years period. This objective was deemed in line with the '*European Strategy for Tobacco Control*' prepared by WHO/Europe that set as the principal target to bring the rate of decline in smoking prevalence down to 2% per year. Taking into account a price elasticity of -0.43, as suggested by the World Bank[272], a 25% price increase was considered necessary to achieve the 10% reduction in demand envisaged. The impact of price increase was expected to be higher among the youth who – according to the literature – are more responsive to price than the elderly. In this sense, taxation was considered as an effective policy tool also to prevent people from initiating smoking.

The IA 2008 developed various scenarios to achieve this objective that were not entirely taken on in the approved text of the Directive (see Section 4.4.1), with the consequence of reducing the number of countries potentially affected by the revised EU minima and the extent of the increase, and thereby the possible impact on the demand.[273] Furthermore, the IA 2008 seemingly assumed a full correspondence between reduction in the sales of cigarettes and smoking prevalence decline. Actually, there is consensus among public health experts that part (roughly half) of the reduction in consumption regards smoking 'intensity' – i.e. the average number of cigarettes/day per smoker – and not 'prevalence'.[274] At the same time, taxation is not the only tool to curb smoking

[271] See: SEC(2008) 2266.
[272] See: Jha and Chaloupka, 1999.
[273] The IA 2008 acknowledged that maintaining the minimum rate of €64 per 1000 units on all cigarettes would not be sufficient to address health concerns in the internal market as a whole. Also the change of the benchmark for the 57% rule to the WAP was estimated to have little impact from a public health perspective. It was envisaged that an increase of the fixed minimum requirement to €90 (starting from 2014) could entail a potential reduction in demand in the region of 17% in the 'affected' Member States. Such revision would lead to a price increase exceeding 10% in a number of Eastern European countries and in Spain (assuming a full 'pass-through' of tax onto price). To achieve the proposed 10% prevalence reduction target, the €90 fixed minimum needed to be combined with an increase of the relative minimum from 57% till 63%, since this would trigger price increases also in other countries, for a total of 21 MS affected. In fact, in the approved text of the Directive the increase of the relative minimum was 60% instead of 63% and the escape clause threshold was reduced from the proposed € 122 to € 115. So, the number of potentially affected countries reduced to some dozen.
[274] See: WHO, 'Technical manual on tobacco tax administration', 2010, which reports conclusions from different studies. For a detailed review of the relevant literature see: IARC, 2011. The qualitative feedbacks collected from the interviews with public health experts tend to agree with this estimate. On this point there are, however, diverging views that are useful to report. A recent paper challenged the general consensus among policymakers that raising tobacco taxes reduces smoking prevalence and maintained that evidence that tobacco taxes reduce adult smoking is relatively sparse and not strongly grounded from an econometric perspective. By using a novel paired difference-in-differences technique to estimate the association between tax increases and survey-declared smoking prevalence the authors estimate that, for adults, the association between cigarette taxes and either smoking prevalence or smoking intensity is indeed negative, but small and poorly statistically significant as compared to that found for released quantities. According to the authors, increases in cigarette taxes are associated with small decreases in the number of smokers and smoking intensity and that it will take sizable tax increases, of the magnitude of 100%, to effectively decrease adult smoking by as much as 5%. This would not be due to cross-border shopping and price arbitrage between countries but to adjustments in smokers'

prevalence, so it can be assumed that in the intention of policymakers, the 10% reduction target was to be achieved by a mix of fiscal policies and other tobacco control policies (and possibly considering broader cultural trends).

Irrespective of the nuances about the size of the expected impacts, the broad validity of the underlying rationale remains undisputed and is shared by almost all respondents to our consultation of MS authorities. As can be seen in Table 4.19 below, in most EU countries tax measures, and especially increased tax levels on cigarettes and/or FCT particularly for low price products, has been adopted in the 2011-17 period with a view to curb smoking prevalence. Interestingly, public health authorities perceived more frequently than tax authorities the causal link between tax increases and public health objectives in their countries.

Table 4.19 – Tax measures adopted in the 2011-17 period to address public health objectives

A) Public health authorities (number of MS)		B) Tax authorities (number of MS)	
Increased tax levels for cigarettes	13	**Increased tax levels for cigarettes**	16
Increased tax levels for fine-cut tobacco	13	**Increased tax levels especially for the low-price segment of cigarettes**	16
Increased tax levels for cigars and cigarillos	11	**Increased tax levels for fine-cut tobacco**	15
Increased tax levels for other smoking tobacco	12	**Increased tax levels especially for low-price segment of fine-cut tobacco**	11
Appropriate taxation of heated tobacco products	6	**Increased tax levels for cigars and cigarillos**	13
Appropriate taxation of e-cigarette	5	**Increased tax levels especially for low-price segment of cigars and cigarillos**	9
		Increased tax levels for other smoking tobacco	13
		Introduction of ad hoc taxes on electronic cigarettes	6
		Introduction of ad hoc taxes on heated tobacco products	6

***Source**: Targeted consultation of public health authorities (15 respondents) and tax authorities (24 respondents) of the MS.*

The price elasticity of -0.43 assumed in the IA 2018 is in line with the prevailing literature for high-income countries (see Box 2.1 for a brief review of the relevant literature), including for the EU[275], and is consistent with the estimates developed in the framework of this Study.[276] But while there is consensus on average values, there can be major ***differences between countries and population groups***. For instance, studies conducted in Ireland showed a price elasticity well below -1.0, meaning that in this country the demand of cigarette is (no longer) inelastic.[277] More notably, the research

behaviour. See K Callison and R. Kaestner, 'Do Higher Tobacco Taxes Reduce Adult Smoking? New Evidence of the Effect of Recent Cigarette Tax Increases on Adult Smoking', NBER Working Paper No. 18326 2012.

[275] Nguyen L, Rosenqvist G, Pekurinen M. Demand for tobacco in Europe. An econometric analysis of 11 countries for the PPACTE project. Helsinki, Finland: National Institute for Health and Welfare (THL); 2012. Available from: http://www.tri.ie/uploads/5/2/7/3/52736649/thl_report.pdf

[276] The point estimate of -0.54 used in this Study is only slightly higher than the elasticity coefficient used in IA 2008 (and later, in the TPD2). As discussed, this difference can relate to (1) timeframe (2005-17 v. 1990s or early 2000s); (2) product coverage (all tobacco products v. only cigarettes), geographical coverage (EU countries, including countries not qualifying as 'high income' throughout the period considered, v. high income countries, including non-EU). With respect to the last point, it can be useful to underline that according to the literature the price elasticity for low-middle income countries (as some MS arguably were for part of the 2005-17 period) is higher, i.e. around -0.5 (see NCI and WHO, 2016).

[277] The Revenue Service in Ireland found that according to their modelling results, the price elasticity in the country ranges from -1.6 to -2.0, averaging at -1.8. Chaloupka and Tauras in the same country employed eight econometric models of taxed cigarette demand and the elasticities they found vary between -1.2 and -2.3. See Chaloupka, F.J. and Tauras, J.A., '*The Demand for Cigarettes in Ireland*', paper funded by the HSE National Tobacco Control Office, 2011 quoted in Irish Revenue Statistics & Economic Research Branch *Economics of Tobacco: An Analysis of Cigarette Demand in Ireland.* September 2015. Although poorly formalised in the literature, the most likely explanation for this is that price elasticity does vary in the different stages of the 'tobacco epidemics' and along the demand curve over time.

estimating gender differences in the price elasticity of adult tobacco use in high income countries has produced mixed evidence that vary greatly from country to country. In a seminal study on this matter,[278] it was even estimated that the demand among women was in practice unresponsive to cigarette prices. However, other more recent works come to the opposite conclusion, finding the demand among women more elastic to price than the total adult population average[279]. In general, studies found that cigarette demand becomes more price-inelastic among older age groups. So, the impact of taxation could be expected to decrease as the population ages. Finally, the evidence for a relationship between price and youth smoking initiation strictly speaking is again mixed[280] and other factors such as peer emulation and parental models might be substantially at play and vary greatly from country to country.

The elasticity of the demand displays also dynamic features. Some experts share the impression that while tobacco price elasticity as a whole has remained fairly stable over time, the elasticity of the different tobacco products, including cigarettes, might have tended to increase. This is considered as a possible consequence of the increased product segmentation of the market and the ensuing greater propensity of consumers of switching opportunistically from one product to another. A recent work conducted in U.S. also demonstrated that elasticity is not homogeneous but increases with price levels with ensuing impact on public health: "*states that have cigarette taxes/prices above the national [i.e. U.S. federal] average will generate less additional revenue [from a tax increase], but have a greater public health impact compared to states that have cigarette taxes/prices below the national average, which will collect more additional revenue, but have less public health benefit*".[281]

- **ACTUAL TRENDS IN SMOKING PREVALENCE**

In the 2009-2017 period, the EU-level decrease in smoking prevalence has indeed been broadly in line with the 10% targets of the WHO, although it was achieved in a timeframe longer than what originally anticipated. This is confirmed by statistics on both current and daily smoking prevalence. According to Eurobarometer data (see Section 3.2.3) this decreasing trend has actually slowed down over the last three years. At a more granular level, MS trends were largely uneven and hardly correlate to accessibility and affordability trends, indicating that other complex causes and processes are at play. This includes, for instance, the possibility that the different stages in the evolution of the tobacco epidemics influence how the demand react to tax policies in the different MS. Furthermore, as discussed in the previous section, the composition of the smoker population group does matter.

As a result, there is substantial dissatisfaction among public health authorities of the MS with ***smoking prevalence actual trends as compared to expectations***. As Table 4.20 shows only few respondents appear fully satisfied with the reduction in prevalence registered in their country, while there is a widely shared impression that prevalence has not decreased as fast as it was anticipated, also considering the measures and policies enacted. This particularly concerns the prevalence among women, for which also the

[278] Chaloupka FJ. Men, women, and addiction: the case of cigarette smoking. NBER working paper 3297. Cambridge, MA: National Bureau of Economic Research; 1990. Available from: http://www.nber.org/papers/w3267.pdf.
[279] Aristei D, Pieroni L. *Addiction, social interactions and gender differences in cigarette consumption*. Empirica. 2009;36(3):245-72. doi: 10.1007/s10663-008-9083-2
[280] International Agency for Research on Cancer. Effectiveness of tax and price policies for tobacco control. IARC handbooks of cancer prevention: tobacco control, Vol. 14. Lyon, France: International Agency for Research on Cancer; 2011.
[281] John A. Tauras, Michael F. Pesko, Jidong Huang, Frank J. Chaloupka, and Matthew C. Farrelly, 'The Effect of Cigarette Prices on Cigarette Sales: Exploring Heterogeneity in Price Elasticities at High and Low Prices', NBER Working Paper No. 22251 May 2016 JEL No. I1,I12,I18.

literature has often observed the mixed impact of price and taxation. The annualised decline of smoking prevalence among women according to all sources consulted appears lower than among males.

Particular dissatisfaction was expressed also in relation to the reduction of prevalence in low-income population. This is a well-known paradox acknowledged by most public health experts interviewed. In fact, although the poorer layers should be more responsive to price-related effects (and this is believed to be the most effective policy tool available for them), the empirical evidence indicates that in recent years smoking prevalence has decreased proportionally more among the upper than the lower layers of the population, as if the elasticity in this subgroup were lower than in the rest of the population. The different resilience observed in this sub-group evidently represents a challenge to the effectiveness of tax policies. Conversely, public health authorities appear much more satisfied with the trends in the reduction of smoking prevalence among young people. As discussed, this subgroup has demonstrated a greater sensitivity to price, therefore the effectiveness of tax policies has likely been higher.

Table 4.20 - Public health authorities' satisfaction with smoking prevalence actual trend (2011-17) vis-à-vis expectations/targets

	Very High	High	Intermediate	Low	Very Low	Don't Know
Reduction of overall smoking prevalence in the country population (i.e. % of smokers)	0	2	10	0	2	1
Reduction of smoking prevalence among young people	0	5	5	2	1	2
Reduction of smoking prevalence among women	0	0	6	5	2	2
Reduction of smoking prevalence among low-income population	0	0	5	3	1	5
Reduction of smoking frequency among smokers (i.e. the average number of cigarettes per day)	0	2	6	1	1	4

***Source**: Targeted consultation of public health authorities of the MS (15 respondents).*
***Note:** Table indicates the number of MS in accordance with their level of satisfaction.*

Before analysing country-level smoking prevalence data in more detail, two methodological considerations are worth mentioning:

- Over the last decade the EU has witnessed a major net inflow of immigrants that has influenced the demographic trend, especially in some MS. These individuals were not accounted for in the smoking prevalence projections, but are likely captured by the Eurobarometer surveys (and country-level surveys), thus making ex ante and ex post estimations not fully consistent with respect to the population base. However, the magnitude of the possible distortion of results appear minimal.
- As far as the impact of affordability is concerned, it is worth reminding that the general ageing of the population could also lead to a bias when comparing results with the *ex-ante* perspective. This is because the size of the young cohorts entering the market - and assumed to be the most price sensitive – decreases by the year, while the average age of the population grows and with it its propensity to be price insensitive (since the 'adverse selection' mechanism tends to leave on the market the most addicted consumers). Eurobarometer data are not age-standardised while the WHO data are. But since our objective here is to review the different national trends over time rather than comparing absolute prevalence figures, we can assume that this distortion is not so substantial to influence the results of our analysis.

The Table 4.21 below ***compares the affordability / accessibility trends with the smoking prevalence trends*** according to two sources, the Eurobarometer surveys and the estimates of the Global Burden of Disease Study 2015.[282] The following considerations apply:

- The smoking prevalence trends based on the two sources considered are fairly consistent with each other, but display an almost negligible correlation with the affordability / accessibility trends estimated on the basis of the relative income price (RIP) variables examined in the previous Section. If any, the correlation with accessibility (i.e. the RIP related to the lowest market price – P_{min}) is stronger than with affordability (the same indicator, but based on WAP), thereby supporting the assumption that the measures aimed at increasing prices in the low segment of the market proved more effective for tobacco control purposes.
- The disparity in country-level trends may be due to various factors, including also data quality issues, but seems to overall confirm that price and income elasticities vary across markets, and therefore EU-level measures may not have the same effect across MS. As the broad consistency in the average EU levels reported in the Table suggests, such differences level out when the EU is analysed as a whole.

Table 4.21 - Comparisons between trends in smoking prevalence and trends in affordability and price accessibility (2009-2017)

MS	A) Smoking prevalence change, in % 2009-2017 (EB)	B) Smoking prevalence change, in % 2009-2017 (age 15-24) (EB)	C) Smoking prevalence age-standardised change in % 2005-2015 (GBD)	D) Affordability change 2009-17	E) Accessibility change 2009-17
AT	-16.8%	-21.6%	-0.49%	-3.5%	-5.8%
BE	-36.0%	-65.9%	-1.50%	-11.8%	-24.2%
BG	-7.7%	4.8%	-0.96%	-22.8%	-30.2%
CY	-14.1%	-33.3%	-0.45%	..	..
CZ	11.2%	2.9%	-0.10%	-5.5%	-11.0%
DE	1.6%	14.8%	-0.55%	6.5%	13.3%
DK	-35.9%	-45.8%	-3.07%	-9.3%	-20.2%
EE	-27.2%	-50.0%	-1.66%	0.5%	-7.9%
EL	-13.1%	-25.6%	-0.75%	-46.2%	-53.5%
ES	-21.7%	-35.4%	-1.95%	-36.5%	-39.6%
FI	-1.9%	-20.0%	-0.86%	-26.1%	-26.9%
FR	-21.2%	-18.8%	-1.31%	-13.6%	-13.0%
HR	-23.9%	46.2%	-0.38%	-37.5%	-18.0%
HU	-30.0%	0.0%	-1.31%	-28.9%	-36.1%
IE	-37.4%	-35.9%	-0.86%	22.0%	24.2%
IT	-5.0%	36.0%	-0.95%	-13.4%	-17.6%
LT	-3.0%	17.2%	-0.01%	-18.4%	-30.9%
LU	-16.0%	25.0%	-1.20%	..	..
LV	-10.6%	-2.8%	-0.50%	-13.6%	-30.2%
MT	-7.7%	-20.8%	-0.86%	..	..
NL	-19.2%	-14.3%	-2.46%	-19.3%	-24.8%
PL	-10.0%	-23.7%	-1.21%	-16.2%	-23.4%
PT	11.3%	68.2%	-0.36%	-14.6%	-17.4%
RO	-6.7%	-10.8%	-1.36%	-33.6%	-34.2%
SE	-55.6%	-84.2%	-2.23%	-4.0%	16.5%
SI	7.3%	0.0%	-0.15%	-24.7%	-31.4%
SK	1.2%	45.8%	-0.11%	-1.0%	-16.0%
UK	-37.9%	-55.0%	-1.05%	-24.8%	-25.3%
EU	**-15.2%**	**-10.8%**	**-1.02%**	**-15.9%**	**-19.3%**

Source: *Author's elaborations based on Eurobarometer (81.7 and 72.3), Global Burden of Disease (GBD) Study (2015), Eurostat, EDT and Euromonitor International price data.*
Legend: *(..)=data unavailable; EB=Eurobarometer.*
Notes: *A) ratio between the reduction in the prevalence between 2017 and 2009 and the 2009 baseline figure; B) average annual decrease in prevalence in compounded terms (year-on-year); C) ratio between the reduction*

[282] Global burden of disease, 'Smoking Prevalence and attributable disease burden in 195 countries and territories, 1990-2015: a systematic analysis from the Global Burden of Disease Study', The Lancet, May 2017.

of between 2009 and 2017 of affordability (measured as the inverse of the WAP-based RIP) and the baseline 2009 figure (see Section 4.4.3.1); D) ratio between the reduction of between 2009 and 2017 of accessibility (measured as the inverse of the P_{min}-based RIP) and the baseline 2009 figure (see Section 4.4.3.1).

Based on the above data, MS can be segmented into four groups:

- countries where a coherent significant decreasing trend was registered in both affordability (and accessibility) and smoking prevalence, in particular ES, FR, HU, NL, UK, and BE;
- countries where a coherent moderate decreasing (sometimes increasing) trend was registered in both affordability (and accessibility) and smoking prevalence, in particular LV, CZ, DE, IT, PT and SK;
- countries where a major decline in affordability (and accessibility) did not match with a similar decline in prevalence, such as EL, BG, LT, FI and SI; and
- countries where smoking prevalence declined in a much greater proportion than affordability (and accessibility), such as DK, EE, SE.[283]

The information available is insufficient to determine case-by-case the rationale for these disparities. Evidently, in the first and second groups the prevalence trends can be broadly attributed to general price and income elasticities, whereas in the third and fourth groups it can be assumed that country-specific factors play a major role. These include the relative prevalence in specific socioeconomic groups (working class smokers are, as seen, more resilient to quit smoking trends), between gender (the price sensitivity is generally lower among female smokers), but can also depend on 'unrecorded consumption' (i.e. cross-border shopping and illicit trade) or - as discussed further below – on substitution across products (primarily FCT).

The relationship between ***smoking prevalence among young people*** (aged 15-24) and cigarette affordability and price accessibility is even more complex and blurred than it is for the overall population at large. The elasticities for this age group are often deemed substantially higher than for the general population.[284] However, in a number of MS (e.g. PT, HR, IT, SK and others) youth smoking prevalence data appear on the rise and in clear countertendency with what price accessibility and affordability considerations would lead to believe. Disagreements do arise among interviewees on the underlying reasons why. So, some put the blame on too low tax rates, hence prices, while others - actually the majority – on product substitution.[285] At any rate, smoking prevalence among the youth seems even less explained by affordability trends than in the case of adults, so cultural and other factors appear even more relevant here.

Variations in smoking prevalence among the 15-24 years age group at the national level are substantial. As a word of caution, it is worth reminding that these Eurobarometer-based estimates are based on relatively small samples (in the range of 100-150 individuals per country) and could be subject to a substantial margin of error[286]. However, there are similarities in the group of countries where smoking prevalence decrease was well beyond what the affordability trends would suggest (e.g. SE, IE, DK, EE, BE and AT).

[283] The countries not mentioned here either displayed contradicting prevalence and/or affordability trends (likely due to quality data issues) or could not be assessed for lack of price data (MT, LU, and CY).
[284] The assumption that elasticities are higher among the young is often reported in the literature and was even used to build the simulations of the SIM SMOKE model described further below.
[285] Some public health experts warn against the risk that the traditional cigarette consumption is being replaced by very different patterns of tobacco consumption with their peculiar dynamics in an increasingly fragmented EU market. So, consumption habits among the youth would simply increasingly diverge (as an interviewee said 'the young here increasingly make a point of having national smoking habits different from those of their counterparts in other parts of Europe to mark and underline cultural differences').
[286] For instance, the reported prevalence among the young in Italy is at odds with what reported elsewhere in the literature where it appears to have remained substantially unchanged over a decade. Lugo A., Zuccaro P., Pacifici R, Gorini G, Colombo P, La Vecchia C, Gallus S. Smoking in Italy in 2015-2016: prevalence, trends, roll-your-own cigarettes, and attitudes towards incoming regulations. Tumori. 2017 Jul 31;103(4):353-359. doi: 10.5301/tj.5000644. Epub 2017 May 26.

It could be speculated that smoking prevalence would tend to be particularly inelastic to affordability and price accessibility considerations among the young where it also is inelastic among women, but more in-depth data are needed to verify this assumption.

- **EFFECTS OF SUBSTITUTION WITH FCT ON SMOKING PREVALENCE**

The evidence collected from various direct (interviews and consultations) and indirect sources (literature) concurs in considering the substitution between cigarettes and fine-cut tobacco as a main explanatory factor beyond less-than-expected reduction of the smoking prevalence.[287] Coherently, public health authorities have generally flagged the taxation of FCT among the most important tobacco control measures enacted in the recent past and a priority for future fiscal policies.

According to Eurobarometer surveys, in 2017 hand-rolled cigarettes were being used on a daily basis by 18% of smokers on average, up from 12% in 2012. Conversely, factory-made cigarettes daily use decreased from 80% to 73% (figures cannot be summed up because of 'dual users' of both cigarettes and FCT). Using the sheer ***ratio between daily users of FCT and cigarettes*** as an indicator, the overtime shift from FCT to cigarettes regarded nearly 12% of the smoker base (see Table 4.22).

Table 4.22 - Share of the number of smokers declaring themselves regular daily smokers of factory-made cigarettes and FCT (% of smokers)

MS	FCT 2012	FCT 2017	FMC 2012	FMC 2017	Ratio FCT/FMC (2017)	Var. of ratio since 2012*
AT	6%	5%	87%	86%	5.8%	-1.1%
BE	25%	34%	68%	56%	60.7%	23.9%
BG	3%	8%	90%	91%	8.8%	5.5%
CY	20%	31%	82%	66%	47.0%	22.6%
CZ	3%	11%	82%	79%	13.9%	10.3%
DE	18%	26%	78%	65%	40.0%	16.9%
DK	16%	10%	74%	71%	14.1%	-7.5%
EE	1%	4%	79%	81%	4.9%	3.7%
EL	22%	29%	80%	68%	42.6%	15.1%
ES	13%	23%	83%	75%	30.7%	15.0%
FI	13%	17%	81%	69%	24.6%	8.6%
FR	23%	34%	73%	56%	60.7%	29.2%
HR	..	27%	..	68%	39.7%	..
HU	14%	44%	80%	50%	88.0%	70.5%
IE	9%	29%	81%	63%	46.0%	34.9%
IT	6%	12%	86%	85%	14.1%	7.1%
LT	4%	5%	82%	89%	5.6%	0.7%
LU	9%	14%	78%	80%	17.5%	6.0%
LV	3%	3%	85%	80%	3.8%	0.2%
MT	15%	18%	85%	78%	23.1%	5.4%
NL	41%	33%	60%	43%	76.7%	8.4%
PL	9%	16%	88%	79%	20.3%	10.0%
PT	15%	7%	82%	90%	7.8%	-10.5%
RO	2%	3%	90%	90%	3.3%	1.1%
SE	8%	2%	75%	47%	4.3%	-6.4%
SI	3%	17%	84%	79%	21.5%	17.9%
SK	2%	10%	79%	85%	11.8%	9.2%
UK	29%	36%	70%	64%	56.3%	14.8%

[287] See among others: (1) Á López-Nicolás, L. Badillo-Amador, M. Belén Cobacho-Tornel, *Will the European Union's New Tobacco Tax Legislation Lead to Reductions in Smoking Prevalence? Evidence from a Quasi-Experiment in Spain*, Nicotine & Tobacco Research, Volume 15, Number 12 December 2013 comparing smoking prevalence trends in mainland Spain and the tax-exempt Canaries Islands; (2) Sureda X, Fu M, Martinez-Sanchez JM, et al. Manufactured and roll-your-own cigarettes: a changing pattern of smoking in Barcelona. Spain Environ Res. 2017;155:167–74. (3) Similar consumption behaviours have been reported the UK: Tavakoly B, Hiscock R, Taylor G, Gilmore AB. Smoking patterns in Great Britain: the rise of cheap cigarette brands and roll your own (RYO) tobacco. Journal of Public Health. 2013, Brown AK1, Nagelhout GE2, van den Putte B3, Willemsen MC2, Mons U4, Guignard R5, Thompson ME6 Trends and socioeconomic differences in roll-your-own tobacco use: findings from the ITC Europe Surveys Tob Control. 2015 Jul;24 Suppl 3:iii11-iii16. doi: 10.1136/tobaccocontrol-2014-051986. Epub 2015 Jun 22.

MS	FCT 2012	FCT 2017	FMC 2012	FMC 2017	Ratio FCT/FMC (2017)	Var. of ratio since 2012*
EU average	**12%**	**18%**	**80%**	**73%**	**28.3%**	**11.5%**

Source: *Eurobarometer 2012 and 2017.*
Legend: *FMC=factory-made cigarettes; FCT=fine-cut tobacco, (..) data unavailable; (*) variation expressed in % points.*

However, there are huge variations in the popularity of FCT across MS, in particular[288]:

- In BE, HU, NL, FR and the UK, the daily users of FCT account for more than half of smokers. Conversely, only less than 5% of smokers use FCT in SE, LV, EE and RO.
- A number of MS have registered a steep increase in the share of FCT daily users in the period considered, primarily HU, but also IE and FR. A small countertendency has registered only in PT, SE and DK.
- There is by definition an inverse correlation between the daily use of cigarettes and of FCT, but this correlation is not perfect because of 'dual users' of both products (and to a minor extent because of the consumption of other tobacco products). The correlation has reduced overtime, possible suggesting an increase in dual use.
- As noted, in the Eurobarometer 2017 report younger respondents (aged 15-24) are significantly more likely than other age group to smoke FCT (29% compared with 19% of the oldest cohort).

At this point it can be interesting to investigate the relationship between the above substitution trends and ***the affordability and price accessibility trends***. As can be seen in the Table 4.23 below when measured in comparable RIP terms at WAP levels – and using a conversion factor of 0.75g=1 stick - the difference between the affordability of cigarettes and FCT remains significant in absolute terms in a number of MS (with the notable exception of Greece, where this has dropped significantly). The convergence in affordability mirrors, by design, the price gap trend between the two products, which has been slowly reducing until 2014 for the EU as a whole, but then stalled. In some Member States (DK, FR, HU, LV, NL, PL, UK) there is evidence of an effort to reduce the growing price affordability gap mainly starting from 2014.

Table 4.23 - Differences in RIP between FCT and cigarettes at WAP levels (2010-2017)

MS	2010	2012	2014	2016	2017
AT	-0.66%	-0.59%	-0.59%	-0.54%	-0.52%
BE	-0.98%	-0.97%	-1.02%	-0.99%	-0.95%
BG	-1.45%	-0.51%	-0.28%	-0.29%	-0.25%
CZ	-0.84%	-0.77%	-0.80%	-0.81%	-0.80%
DE	-0.98%	-0.88%	-0.85%	-0.86%	-0.82%
DK	-0.50%	-0.55%	-0.57%	-0.52%	-0.48%
EE	-0.72%	-0.74%	-0.77%	-0.85%	-0.95%
EL	-0.47%	-0.33%	0.05%	0.01%	-0.07%
ES	-0.85%	-0.93%	-0.86%	-0.81%	-0.78%
FI	-0.71%	-0.73%	-0.81%	-0.85%	-0.90%
FR	-0.92%	-0.95%	-0.93%	-0.90%	-0.88%
HR	-1.13%	-1.12%	-1.11%	-1.00%	-1.60%
HU	-1.49%	-1.66%	-2.00%	-1.94%	-1.84%
IE	-0.40%	-0.40%	-0.60%	-0.54%	-0.61%
IT	-0.85%	-0.86%	-0.78%	-0.77%	-0.74%
LT	-0.59%	-0.21%	-0.22%	-0.37%	-0.37%
LU	-0.34%	-0.34%	-0.34%	-0.33%	-0.32%
LV	-0.63%	-0.62%	-0.66%	-0.50%	-0.43%
NL	-0.78%	-0.87%	-0.93%	-0.86%	-0.79%
PL	-1.27%	-1.12%	-1.32%	-1.27%	-1.13%
PT	-1.27%	-1.24%	-0.76%	-0.47%	-0.32%
RO	0.98%	1.26%	0.30%	-0.43%	-0.63%
SE	-0.16%	-0.11%	-0.12%	-0.09%	-0.07%
SI	-0.65%	-0.70%	-0.61%	-0.60%	-0.56%

[288] It is, however, worth reminding as a word of caution that all these percentages are drawn from Eurobarometer based on samples of some 200-300 individuals and could therefore be subjected to sizeable margins of error including the identification of spurious trends.

MS	2010	2012	2014	2016	2017
SK	-0.52%	-0.33%	-0.35%	-0.37%	-0.36%
UK	-0.41%	-0.78%	-0.93%	-0.65%	-0.53%
EU	**-0.72%**	**-0.66%**	**-0.69%**	**-0.68%**	**-0.68%**

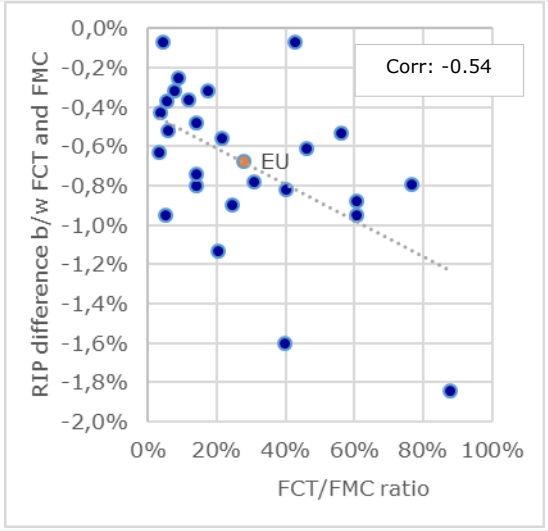
Source: *Author's elaboration based on EDT (integrated with Euromonitor International) and Eurostat.*
Notes: *data are reported as % points differences. The lower the value the greater the FCT affordability vis-à-vis cigarettes. A conversion factor of 0.75g=1 stick has been applied to FCT.*

Similar and possibly amplified trends emerge from the analysis of the comparative price accessibility of FCT and factory-made cigarettes (not displayed). Here the effort of filling the gap between the 'lowest market prices' of the two products seems even greater, with the difference in average RIP levels (measured on P_{min} products) having dropped from -0.68% points in 2010 to -0.51%.

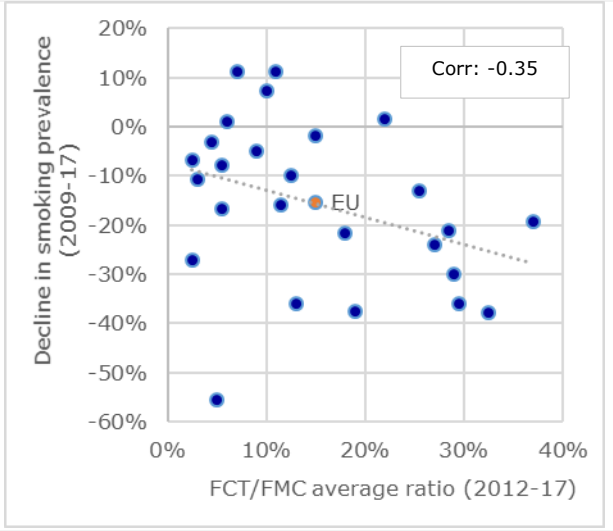
More interestingly, the extent of use of FCT among smokers seems associated to the difference in RIP levels showed in Table 4.23, providing a possible empirical confirmation that substitution is affordability-driven, as it was already estimated econometrically in this Study by means of cross-price elasticity analysis (see Figure 4.22.A). Instead, there is a minimal correlation, but with the expected sign, between the use of FCT and the smoking prevalence decline trends (Figure 4.22.B). This can be interpreted as the existence of a mitigation effect on prevalence decline caused by the substitution with FCT, but not sufficient to explain the observed trends.

Figure 4.22 – Comparison between FCT use prevalence and trends in affordability and smoking prevalence

A) Comparison between the FCT/FMC ratio and the RIP difference between FCT and FMC in MS (2017)



B) Comparison between the FCT/FMC average ratio variation and the smoking prevalence trend in MS*



Source: *Author's elaboration based on the estimates developed in this section (data source: EDT, Euromonitor International, Eurobarometer and Eurostat).*
Legend: *FMC=factory-made cigarettes, FCT=fine-cut tobacco; RIP=relative income price; corr.=correlation.*
Notes: *A) RIP differences as in previous Table 4.23, FCT/FMC ratio as in Table 4.22; B) Decline in smoking prevalence according to Eurobarometer as in Table 4.21, FCT/FMC average ratio based on 2017 (Table 4.22) and 2012 data (not displayed). (*) the time period of the two variables is partly different. CY and MT not included for lack of data.*

➢ THE SPECIFIC IMPACT OF TAXATION WITH RESPECT TO OTHER POLICIES

As discussed in the previous sections, the causal link between taxation and smoking cessation patterns is far from being linear. Still, there is overwhelming consensus among the public health experts and stakeholders that taxation is the single most effective

measure to curb tobacco consumption. As a rule of thumb, the experts interviewed in the scope of this Study would attribute between one-third and half (depending on the country) of the smoking prevalence decline to taxation. This general assumption is supported by all the mainstream literature on tobacco control[289]. However, much less is known about how taxation specifically interacts with other tobacco control measures and the respective 'weight' that can be eventually attributed to each of them in curbing tobacco consumption in a multi-policy environment.

The literature on ***smoke-free environments*** represents is a case in point. Some recent works have shown the existence of synergies between tobacco taxation and legislation on smoke-free environments resulting in a mutually reinforcing effect on smoking prevalence.[290] Other studies carried out in Europe have confirmed a positive association in Europe between legislation on smoke-free public places and decreased smoking prevalence (although mitigated by the consumption of tobacco products other than cigarettes).[291] On the other hand, previous studies had hypothesised a problem of data endogeneity in the relationship between these policies and the demand for tobacco, with the possibility of 'reverse causation' effects.[292] In other words, the degree of enforcement of smoke-free legislation is influenced by the strength of the demand for cigarettes and not *vice versa*. More specifically, a distinction should be made between smoking restrictions in public places and smoking at work, with the first much more effective in curbing consumption than the latter.

The interviews carried out with public health experts confirm the existence of different views on the respective effectiveness of non-fiscal tobacco control measures. There is some widespread consensus on the fact that ***tobacco advertising bans*** and, to a possible smaller scale, ***health warnings and labelling*** had the strongest synergic effects with taxation over the last decade.[293] Others expert suggested that also the physical availability of ***smoking cessation services*** in the different countries tend to influence the success of cessation attempts and therefore the ultimate impact of taxation on smoking prevalence.

These claims cannot be straightforwardly tested with quantitative approaches primarily because the enforcement of these measures in the different countries cannot be measured in an objective and comparable manner. One of the most notable exercise in this respect is the Tobacco Control Scale, which systematically measures the implementation of tobacco control policies at country level in six main policies area.[294] The scores are attributed by tobacco control experts based in the different MS, based on agreed criteria and parameters. The Tobacco Control Scale started in 2007 and four reports have been published so far, allowing an appreciation of the overtime trends in the countries surveyed. On the downside,

[289] For a comprehensive review of the effectiveness of taxation policies for tobacco control see: International Agency for Research on Cancer, '*Effectiveness of tax and price policies for tobacco control',* Lyon: International Agency for Research on Cancer, 2011. For tobacco control policies in general see: International Agency for Research on Cancer, 'IARC handbooks of cancer prevention', vol. 13: Evaluating the effectiveness of smoke-free policies'. World Health Organization, International Agency for Research on Cancer: Lyon, 2009.

[290] V. L. Stevens, R. Diver, M. Stoklosa,W. D Flanders, J. L West, A Jemal, J. M. Drope, S. M. Gapstur,and Eric J. Jacobs, "A Prospective Cohort Study of Cigarette Prices and Smoking Cessation in Older Smokers," Cancer Epidemiology, Biomarkers & Prevention, Published OnlineFirst March 6, 2017; DOI: 10.1158/1055-9965.EPI-16-0690; Vuolo M, Kelly BC, Kadowaki J., "Independent and interactive effects of smoking bans and tobacco taxes on a cohort of US young adults", Am J. Public Health 2016;106:374–80.

[291] Lidón-Moyano C, Martín-Sánchez JC, Saliba P, et al, "Correlation between tobacco control policies, consumption of rolled tobacco and e-cigarettes, and intention to quit conventional tobacco", in Europe Tobacco Control 2017;26:149-152.

[292] F. J. Chaloupka and H. Saffer, "Clean Indoor Air Laws and the Demand for Cigarettes", Contemporary Policy Issues, Vol. X, April 1992.

[293] Lidón-Moyano C. et al. (2017) found that the bans on advertising would act in synergy with prices and significantly contribute to demand reduction, while effect of health warnings in the past would be slightly smaller in scale and less statistically significant. The TPD2 impact assessment came to broadly similar conclusions in terms of the possible order of magnitude of expected impacts from the different policy measures.

[294] Joossens L, Raw M, "The Tobacco Control Scale: a new scale to measure country activity", Tobacco Control 2006;15:247-253. See: https://www.tobaccocontrolscale.org/

a certain degree of subjectivity in the scores seems inevitable when it comes to judging the enforcement of certain measures and, as a result, scores do not systematically match with the perceived compliance directly verified through population surveys.[295]

Within the framework of the EU-funded PPACTE programme a number of studies were carried out to forecast the impact of tobacco control policies on smoking prevalence, based on the SimSmoke model[296]. This model draws together data from various sources with a view to single out the effect of different policies implemented by European countries from long-term smoking trends, thereby allowing to evaluate the effects of such policies on smoking prevalence and related mortality, and facilitate policymaking. The model was also played backwards in Ireland[297] and, interestingly, the effects attributed to the different policies in this country resulted similar to the scores elaborated in the Tobacco Control Scale (see Table 4.24 below). Taxation by means of price increases was attributed about one third of the policy-driven decline in smoking prevalence, followed by smoke-free laws, accounting for some 20% of the impact.

Table 4.24 – Relative weight of different tobacco control policies in curbing smoking prevalence

	SimSmoke in Ireland	Tobacco Control Scale
Price	30-35%	30%
Cessation treatment	10-15%	10%
Restriction to youth access	5-10%	..
Mass media campaigns	10%	15%
Smoke-free laws	15-20%	22%
Health warning labels	10%	10%
Advertising bans	10-15%	13%
TOTAL	**100%**	**100%**

Source: *Author's elaborations based on S. Li, et al., 2018 and Joossens L, Raw M (2006).*
Legend: *(..) not available data.*

The ***public health authorities of the MS*** who participated to the targeted consultation carried out under this Study provided a much more conservative assessment on the impact of taxation as compared to other factors (see Table 4.25). In fact, only one-third of the respondents believe that taxation had a major contribution to decreasing smoking prevalence in the period considered, whereas two-thirds consider it a minor or negligible factor. This result seems coherent with the fact that, as seen, tax levels trends have hardly matched income trends in various countries in the past three years, which means that affordability there has improved rather than reduced.

Public health authorities consider smoke-free laws as the most effective tool for curbing tobacco consumption in the 2011-17 period, attributing to it some 30% of the registered decline. Apart from that, the response pattern of MS authorities does not display any big difference with the weights attributed to the different tobacco control policies in the Tobacco Control Scale or based on the SimSmoke model (Table 4.24 above).

[295] For instance, the Eurobarometer have contained questions on the exposure to smoke in public places and work environments. Other EU-funded projects regularly attempt to measure compliance at the consumer level. For instance, a recent EUREST-PLUS exercise has measured exposure to advertisement.
[296] This gave rise to a number of publications: David Levy, Silvano Gallus, Kenneth Blackman, Giulia Carreras, Carlo La Vecchia and Giuseppe Gorini, "Italy SimSmoke: the effect of tobacco control policies on smoking prevalence and smoking attributable deaths in Italy", BMC Public Health201212:709; Shasha Li, David Levy, Luke Clancy, "The effect of tobacco control policies on smoking prevalence using the SimSmoke Ireland model: influence of interventions 2010-2016 on reaching End Game 2025", Tob. Induc. Dis. 2018;16(Suppl 1):A42
[297] See: http://www.tri.ie/uploads/5/2/7/3/52736649/shahsa_ectoh_simsmoke.pdf

Table 4.25 - Policy drivers behind reduction in smoking prevalence in MS in 2011-17, according to public health authorities

Possible drivers	Attributed weight (out of 100%)
Increase in overall price levels driven by tax increases	18%
Health warnings on tobacco packs	12%
Advertising bans	15%
Regulation on smoke-free environments	30%
Campaigns to prevent smoking uptake and encourage cessation	13%
Smoking cessation health support services (including quit smoking aids and therapies)	12%

Source: *Author's elaborations from targeted consultation of public health authorities (15 respondents).*

The relative impact of taxation vis-à-vis other policies on tobacco demand trends has been investigated also econometrically, in this Study. In particular, the Tobacco Control Scale scores have been tested as control variables in our demand model, considering both the three main policies separately (i.e. smoke free environments, ban on advertising and health warnings) as well as in an aggregated way. However, the results did not prove statistically significant, most likely because of insufficiently data granularity.[298]

On another note the econometric model allowed to estimate the average decline of consumption due to factors other than price and income (and therefore unrelated to taxation) at some -1.7% annually. This 'inertial' factor can be interpreted as the sum of both all non-fiscal tobacco control policies and of broader cultural trends (including the so-called 'de-normalisation' of smoking). As discussed, according to the relevant literature, roughly half of the decline in consumption translates into a reduction of smoking prevalence[299], the rest being absorbed by reduced smoking intensity. This assumption is empirically confirmed by the data compiled in this Study: the aggregated consumption of cigarettes and FCT in the EU (using the 0.75g=1 stick conversion rate) have been decreasing by -2.82% year-on-year, which is roughly twice the Eurobarometer-based annual decline of smoking prevalence in the same period, i.e. -1.36%. Deducting the aforementioned inertial factor from the consumption trend, it results that affordability in broad sense (i.e. including price elasticity and income elasticity) has ***accounted for ca. 40% of the decline in consumption and smoking prevalence***, registered in the EU over the last decade.

It is worth highlighting that this estimate is moderately higher from those reported in Tables 4.27, but the difference could be due to the fact that the both the Tobacco Control Scale and the SimSmoke model refer to 'price' and not to affordability. In fact, the anticipated impact of the price index increase in the period considered, appears reduced by the income growth (which is accounted for in the econometric model) by a proportion that is compatible with the difference between our econometric-based estimates and the weights estimated in the above exercises. With respect to the much lower contribution envisaged by public health authorities (Table 4.25), it should be considered that the question explicitly refers to the tax-driven increase of prices. So, in addition to the income

[298] This confirms the findings of other authors that came to the same conclusions. "Our study shows only a low correlation between TCS price scores and tobacco smoking prevalence. Such results could be explained by the lack of variability among countries of the EU27 scores in this component, as 70% of their scores are between 11 and 19 points. Moreover, the smoking prevalence in these countries in 2014 did not differ much either, since also about 70% of them had a prevalence rate between 20% and 29%" See Feliu A, Filippidis FT, Joossens L, et al *Impact of tobacco control policies on smoking prevalence and quit ratios in 27 European Union countries from 2006 to 2014* Tobacco Control Published Online First: 22 February 2018. doi: 10.1136/tobaccocontrol-2017-054119

[299] For a detailed review of the relevant literature see IARC, 2011. Studies conducted in different countries and among different population groups returned very different results: with smoking intensity elasticity accounting from 20% (Russia, 2004), to 50% (USA, 2008), to 90% (Canada, 2003) of the total price elasticity of the demand. So, the 50:50 ratio between intensity and prevalence assumed in this Study, along with WHO 2011, should be considered as a rough average estimate, intended for analytical purposes.

growth factor, also the 'pass-through' elasticity of taxes onto price (in this Study estimated at ca. 0.7) may have contributed to lowering the degree of appreciation.

4.4.4.3 Cigarettes substitution with e-cigarettes.

There is an ongoing debate within the public health community on whether decreasing smoking prevalence should represent the ultimate objectives of tobacco control policies rather than getting rid of nicotine dependence altogether. This is also reflected in the different positions among public health experts on e-cigarettes as a valid smoking cessation aid or rather another vehicle for initiating or maintaining nicotine addiction. The different emphasis placed on the various aspects concerning the nature and the consumption patterns of e-cigarettes may lead to diverging conclusions on the most appropriate policies to deal with these products, ranging from bans to harm reduction attitudes. As discussed already in Section 4.3.3, there is lack of conclusive evidence in this area, and in this sense the latest FCTC Conference of Parties (October 2018) has eventually raised the need for a comprehensive assessment of the evidence on health effects and policy impact regarding e-cigarettes, to help reaching international scientific consensus.[300]

While the risk profile of e-cigarettes remains divisive, there is broad consensus on the fact that the use of e-cigarettes (and of novel product in general) is particularly widespread among smokers and ex-smokers, which point towards the existence of a substitution effect. This may encompass heterogenous behaviours raging from the possible use of e-cigarettes as a support to quit smoking altogether to its use as a purely leisure product, consumed in parallel to conventional cigarettes (e.g. where smoking is not allowed). The implications for tobacco consumption are evidently different: in the first case a direct correlation with smoking prevalence decline is anticipated, while in the second case only a reduction of smoking intensity, if any, can be expected. The economic literature on this matter is still limited but there are already some robust studies investigating the extent of the ***price-induced substitution between cigarettes and e-cigarettes*** by estimating the cross-elasticity of the demand of the two products. In particular:

- Huang (2018), found a positive but not statistically significant cross-price elasticity between cigarettes and e-cigarettes (U.S., data limited to sales in physical stores not including vaping shops);[301]
- Pesko (2017), found that higher e-cigarette cartridge prices reduce e-cigarette use and increase current cigarette consumption (cross-price elasticity of 2.9 for reusable products), especially for males and for older teenagers. The study also suggested that on average e-cigarettes reduce youth smoking (U.S.).[302]
- Zheng (2016), found a statistically robust price-induced substitution between cigarettes and e-cigarettes (cross-price elasticity 1.9) (U.S., data limited to sales in physical stores).[303]
- Stoklosa (2016), found that higher cigarette prices are associated with increased e-cigarette sales (cross-price elasticity between 3.6 and 6.5), so making conventional cigarettes more expensive compared to e-cigarettes could move smokers to e-

[300] FCTC/COP/8/10, Progress report on regulatory and market developments on electronic nicotine delivery systems (ENDS) and electronic non-nicotine delivery systems (ENNDS). Report by the Convention Secretariat, 27 June 2018.
[301] Huang, J., Preventive Medicine (2018), https://doi.org/10.1016/j.ypmed.2018.04.024
[302] Pesko, M. and C. Warman, 'The effect of prices on youth cigarette and e-cigarette use: economic substitutes or complements?', Working Paper, 2017.
[303] Zheng, Y., C. Zhen, D. Dench and J. Nonnemaker, 'US demand for tobacco products in a system framework', Health Economics, 2016.

cigarettes (based on 2011-2014 pooled time-series data on e-cigarette sales and prices for six EU markets: EE, LV, LT, SE, IE and the UK).[304]

While the above studies substantially agree on the fact that cigarettes and e-cigarettes are substitute products, the point estimates of cross-price elasticity vary greatly and display different degrees of statistical robustness. Moreover, a range of other factors – e.g. the geographical coverage, the modality of data collection, the time period etc. – makes these results not immediately applicable to the EU market situation, although reasonably useful for a high-level description of the general trends. The correlation between e-cigarettes consumption and the overall demand for tobacco was also tested in the framework of the econometric model developed in this Study, using e-cigarettes consumers trends as the possible control variable. The result was of the expected sign - i.e. an increase in the number of vapers resulted associated to a reduction in the sales of tobacco products – but the estimate was not statistically significant, likely due to inherent limitations of the panel data available.

Another recent work (Farsalinos, 2016) has investigated the consumption of e-cigarettes in the EU using survey data drawn from the Eurobarometer 2014.[305] The findings of this study, although not updated and based on samples of limited size, are nonetheless useful to report, to provide a general picture of the situation in the EU, in particular:

- Ever e-cigarette use was reported by approximately 48.5 million EU citizens. It concerns primarily the 'current smokers' group (ca. 31% reported ever-use in this group), then the 'former smokers' (ca. 11%), while only 2.3% of the never smokers reported an ever-use of e-cigarettes.
- Based on Eurobarometer data some 6.1 million EU citizens had quit smoking with the help of e-cigarettes, while 9.2 million have reduced smoking intensity.

According to the more recent Eurobarometer 458 (2017) e-cigarette is still a relatively niche product regularly used by 2% of the EU population. Only in a few countries the share of users reaches or exceeds 4%, and namely in the UK, FR and BE (see Table 4.26), but there is insufficient evidence to establish any firm connection between the uptake of e-cigarettes in these countries and any noticeable smoking prevalence patterns. The salient features of the ***EU citizens attitude towards e-cigarettes***, according to Eurobarometer, can be summarised as follows:

- Among regular e-cigarettes users, some two-thirds are actually 'dual users' of cigarettes and e-cigarettes while ca. one-third are former smokers. 'Never smokers' remain a negligible component. Daily use is the norm for two-thirds of e-cigarettes users.
- Prevalence is much higher among men than women and among the 15-24 years group (25% of 'ever-use').
- Socioeconomic conditions seemingly matter: unemployed people and manual workers, as well as those who 'have trouble paying their bill' are more likely of having tried e-cigarettes than the rest of the population.
- The main rationale for taking up e-cigarettes, concerning six in ten users, is by far to curb tobacco consumption. This is followed by the perception that e-cigarettes are less harmful than tobacco (one-third of users) and the fact that e-cigarettes are cheaper (one-fourth of users). Some 15% of users consider important the fact that e-cigarettes can be used where tobacco smoking is not allowed.

[304] Stoklosa, M., J. Drope and F. Chaloupka, 'Prices and e-cigarette demand: evidence from the European Union', Nicotine and Tobacco Research, 18(10), 1973–80, 2016.
[305] Farsalinos et al., "Electronic cigarette use in the European Union: analysis of a representative sample of 27 460 Europeans from 28 countries". Addiction. 2016 Nov;111(11):2032-2040. doi: 10.1111/add.13506. Epub 2016 Aug 21.

- Finally, only 14% of users (with a past or current use of tobacco) declared that using e-cigarettes enabled them to quit smoking entirely. Nearly a fifth (17%) of them reduced their tobacco consumption but did not stop entirely, while the majority (52%) did not reduce their tobacco consumption at all (and some 5% actually increased it). Based on that, e-cigarettes use would have reduced so far smoking prevalence in the EU by roughly some 0.28%.

Table 4.26 - Prevalence of e-cigarettes regular use in the population, broken down by smoking status (Eurobarometer, 2017)

MS	Users among population	Of which current smokers	Of which former smokers
AT	3%	2.0%	1.0%
BE	4%	1.5%	2.5%
BG	0%	0.0%	0.0%
CY	3%	1.7%	1.3%
CZ	1%	0.9%	0.1%
DE	2%	1.5%	0.5%
DK	2%	1.3%	0.7%
EE	1%	0.7%	0.3%
EL	3%	1.5%	1.5%
ES	1%	0.5%	0.5%
FI	1%	0.8%	0.2%
FR	4%	2.9%	1.1%
HR	0%	0.0%	0.0%
HU	1%	0.0%	1.0%
IE	2%	0.8%	1.2%
IT	0%	0.0%	0.0%
LT	1%	0.9%	0.1%
LU	2%	1.5%	0.5%
LV	1%	1.0%	0.0%
MT	2%	1.4%	0.6%
NL	2%	1.0%	1.1%
PL	1%	0.9%	0.1%
PT	1%	0.8%	0.2%
RO	0%	0.3%	0.0%
SE	0%	0.0%	0.0%
SI	1%	0.3%	0.7%
SK	0%	0.3%	0.0%
UK	5%	1.0%	4.0%

***Source**: Eurobarometer 458 (2017).*

In conclusion, it is worth noting that the Eurobarometer figures do not capture the use of e-cigarettes among ***early adolescents***, which is a group of particular concern in various MS. In fact, the prevalence of use of smokeless product in this age group often appears significant when compared to both traditional smoking and to smokeless prevalence among adults. The Table 4.27. below compares youth smoking and smokeless prevalence in a sample of MS, based on own data communicated to the FCTC. Data are insufficient to draw firm conclusions, but the ratio between smokeless and smoking prevalence (as a proxy for the relative uptake of smokeless products) shows some inverse correlation with the overall smoking prevalence level, possibly indicating the smokeless products are more appealing where the 'de-normalisation' of conventional smoking is more advanced.

Table 4.27 - Smoking and smokeless prevalence among the young (% of the reference population, latest available information)

	Smoking Prevalence			Smokeless Prevalence		
	Male	Female	Total	Male	Female	Total
BG	25.7	29.0	27.4	3.4	1.5	2.7
CZ	18.4	20.0	19.2	6.4	2.8	4.7
EE	17.1	14.4	7.9	8.6	1.7	2.2
EL	16.9	12.9	15.0	2.5	1.6	1.8
HU	16.0	20.0	18.0	1.0	1.0	1.0

SE*	8.0	13.0	10.0	9.0	2.0	6.0

***Source**: WHO, as background information to FCTC COP8 (2018).*
***Note:** (*) the figures for Sweden appears influenced by the widespread consumption of 'snus' in that country. Data are self-reported by MS and may regard heterogeneous population groups.*

EFFECTIVENESS - SUMMARY OF KEY FINDINGS

1. The Directive provisions on minimum excise rates have been moderately effective in raising tax levels and prices in Member States, especially of cigarettes and fine-cut tobacco, and with particular reference to the low-price segment of the market.
2. The contribution of the Directive to the convergence of tax (hence price) levels between Member States has been mixed. In fact, the gap between 'high-tax' and 'low-tax' countries has slightly expanded, but EU minimum rates have likely contributed to mitigating such trend.
3. As a possible consequence, the incidence of cross-border flows of duty-paid cigarettes from low-tax to high-tax countries has increased. At EU aggregated level, the magnitude of flows is limited, but in certain Member States it causes significant tobacco control and tax revenue issues.
4. The affordability of cigarettes and fine-cut tobacco has decreased in most EU countries over the last decade, primarily in connection with tax increase trends. This had a clear contribution on the decline of smoking prevalence registered in all the EU region. However, such trend has slowed-down and even reversed in some Member States over the past three years, since the price level trend hardly matched the income growth.
5. Taxation has proved to be a main driver for the reduction of smoking prevalence, although the majority of the reduction seems associated to non-economic factors, including the so-called 'de-normalisation' of smoking and the downslope of the tobacco epidemics in various EU countries.
6. The steep decline in the consumption of cigarettes registered after 2005 has been partly mitigated by their substitution with fine-cut tobacco. This phenomenon has radically decelerated after 2013 with the contribution of the Directive provisions, which helped reducing the tax (hence price) gap between these two products.
7. There is still limited robust evidence on the substitution of cigarettes with e-cigarettes, but survey data suggests that a slight share of the smoking prevalence decline registered over the past few years could be attributed to consumers' switching to these products.
8. Overall, the illicit trade of non-taxed cigarettes seems declining in the EU, but it is reportedly on the rise for other products like 'bulk' tobacco and water-pipe tobacco. Affordability (namely price and income trends) is associated to the demand for illegal products, so taxation can have unintended effects on it, but other factors, like geographical position, enforcement capacity etc. do play a major role.
9. Member States have slightly increased their reliance on specific taxation as opposed to ad valorem, but this process was only indirectly related to the very mild provisions of the Directive in this area, and the evidence of impacts on tax revenue stability or price accessibility is not apparent.
10. More concrete impacts seem associated to Member States' recourse to the 'minimum excise duty' (MED) provision, e.g. on price convergence and reduction of price accessibility, but the discrepancies in the interpretation and application of this provision between countries persist, possibly diminishing its effectiveness.

4.5 EU added-value

4.5.1 Specific impacts attributable to the Directive

- **OVERVIEW**

In this Section we try to determine the extent to which the trends observed in the tax and price levels and in the demand of cigarettes and FCT can be attributed to the effects of the Directive. More specifically, we examine what would have happened without Directive's provisions and, in particular, without the EU minimum rates established for the 2010-17 period. To answer this question, we have developed a ***counterfactual scenario***, i.e. starting from the situation in the baseline year (2010) we have estimated how tax (hence price) would have evolved in the absence of a revision of the then minimum rates and we have compared the outcome with a scenario where non-compliant MS had to increase their excise duty rates to meet the EU minima.

It is important to highlight the speculative nature of the exercise, which is aimed at roughly quantifying (at least in terms of order of magnitude) ***the additionality of the Directive at the aggregated EU level***, but cannot capture with sufficient precision country-level effects. In other words, all references to specific MS-level impacts in this Section should be considered as purely hypothetical intermediate steps toward the calculation of the high-level EU-wide impacts. In fact, to allow a more straightforward comparison, special measures like transitional period as well as any other country-specific factors (like tax and price structure) have not been considered.

The crucial variable in the analysis is the price level, which on one side it is influenced by taxes and on the other side it affects demand and consumption. We have considered both WAP (that is the reference for EU relative minimum provision and the 'escape clause') and the lowest market price - P_{min} (that is the reference for fixed minimum provision).

- **IMPACT OF EU FIXED MINIMUM ON CIGARETTES**

The first impact that we have estimated regards the EU fixed minimum requirement of EUR 90 per 1000 cigarettes. The assessment of the counterfactual scenario involved a series of calculations and assumptions, as follows:

1. We have set the baseline in 2010 i.e. the year before the Directive entered into force (although minima were already in place in accordance with the earlier version of the Directive). Since the EUR 90 requirement apply to all cigarettes, we have taken as reference the lowest market price in each MS (hereinafter 'P_{min}').
2. Then, we have estimated the extent of excise duty increase necessary to meet the EUR 90 requirement for MS that were not already compliant. Instead, compliant MS have been assumed as not being impacted by the Directive (so no 'direct' added-value).
3. Based on the 'pass-through elasticity' estimates of our econometric model, we have calculated the percentage of the price increase caused by the percentage increase of tax rates stemming from the previous point.
4. The following step consisted in developing two hypothetical scenarios: one considering the effects of the EUR 90 provision, and the other assuming that such provision was not in place. To this end, we have calculated the average HICP of tobacco (Eurostat's Harmonised index of consumers price) for MS that were not directly affected by the EUR 90 provision. In these countries the price index of tobacco products between 2010 and 2017 increased by ca. 30%. We have then assumed that under the counterfactual scenario (without revision of EU minima) P_{min} levels would have increased by this amount in all MS. For the scenario 'with EU minima' we have

excluded all countries were the P_{min} increase induced by the EUR 90 provision (see point 3) was lower than 30%, on the assumption that even in the absence of the EU requirement these countries would have reached and possibly exceeded the required target (dynamic baseline). For the other MS, the difference between the pass-through elasticity impact on P_{min} and the 30% benchmark indicate the 'extra' P_{min} increase caused by EU minima, i.e. its additionality.

5. In the last step, we have simply compared the two P_{min} scenarios 'with' and 'without' EU minima revision and calculated the virtual price change (in %) caused by the EUR 90 provision in the affected MS. This ratio will be later used for a tentative estimate of ultimate effects on the demand.

It is useful to repeat that MS-level scenarios have to be taken with due caution since country-specific dynamics – including the policy decision that would have been taken in the absence of the Directive – are highly aleatory and could not be considered in this simulation. The intention is to provide an EU-level snapshot of the nature and overall magnitude of impacts and not to compare effects at country level. Having said this, the results of the analysis are reported in Table 4.28 and summarised further below.

Table 4.28 – Estimated net impact of the EUR 90 requirement on the lowest market price of cigarettes in Member States

MS	ED on P_{min} (€, 2010)	Required increase to meet EUR 90 level (%)	Pass-through elasticity impact on P_{min} (%)	P_{min} increase scenario – without EU minima	P_{min} increase scenario – with EU minima	Net impact of EU minima on P_{min}
AT	101.1	-	-	225	225	-
BE	114.5	-	-	244	244	-
BG	72.5	**24%**	18.22%	75	75	Nil
CY	..	..	..	..	..	-
CZ	73.4	**23%**	21.26%	146	146	Nil
DE	130.5	-	-	252	252	-
DK	122.5	-	-	237	237	-
EE	61.0	**48%**	40.04%	108	116	8%
EL	72.1	**25%**	18.59%	130	130	Nil
ES	86.0	**5%**	3.89%	173	173	Nil
FI	115.8	-	-	246	246	-
FR	163.9	-	-	330	330	-
HR*	66.0	..	29.54%	104	112	8%
HU	58.9	**53%**	52.47%	112	131	17%
IE	254.2	-	-	504	504	-
IT	101.8	-	-	225	225	-
LT	55.2	**63%**	48.18%	88	101	14%
LU	..	..	..	..	..	..
LV	62.0	**45%**	35.79%	114	119	4%
MT	..	..	..	..	..	..
NL	134.4	-	-	268	268	-
PL	64.2	**40%**	33.89%	122	126	3%
PT	103.2	-	-	202	202	-
RO	67.9	**33%**	24.47%	100	100	Nil
SE	109.3	-	-	262	262	-
SI	67.4	**34%**	25.69%	143	143	Nil
SK	80.0	**12%**	9.37%	150	150	Nil
UK	194.5	-	-	346	346	-
			Standard deviation	***97.9***	***95.9***	

Source: *Author's elaboration based on EDT (for excise duty levels), Euromonitor International (for the estimation of P_{min}), Eurostat (for HICP of tobacco), and own econometric analysis.*
Legend: *P_{min} =lowest market price (based on Euromonitor International store checks). (..) = unavailable.*
Note: *(*) the baseline year for HR refer to 2012. The 'pass-through elasticity impact on P_{min}' is defined as the expected price increase (in %) following the increase of excise duty (in %) needed to reach the EUR 90 requirement. The increase scenario is calculated projecting baseline price levels (2010) using the Eurostat HICP – tobacco average index of MS that were not affected by EU minima (since already above the prescribed EUR 90). For the entire 2010-17 period such index is ca. 30%. The net impact of EU minima on P_{min} is the ratio between the estimated price with EU minima and without EU minima.*

As the estimates laid down in Table 4.28 show:

- Of the twelve MS that were seemingly not compliant[306] with the EUR 90 requirement in the baseline year (2010), about half would have likely reached this level even in the absence of the EU requirement, i.e. by simply evolving at the same pace of MS that were not affected by this requirement.
- We can estimate a final net effect on the lowest market price ranging from as little as 3% up to a significant 17%. By 'net effect' we intend the 'extra' increase of price level over and above the price change that would have happened anyway.
- This has a modest but tangible positive effect on price level harmonisation. As the 'standard deviation' indicator suggests in the scenario 'without' EU minima revision the price dispersion across the EU would have been greater.
- The net effects on P_{min} also means a reduction of price accessibility and therefore positive public health benefits (as analysed further below).

➢ IMPACT OF EU RELATIVE MINIMUM ON CIGARETTES

The approach to estimate the net impact of the EU relative minimum – i.e. the 60% incidence requirement – is largely the same used for the above EU fixed minimum so it is not repeated here. However, there are a few specific aspects that should be noted, namely:

1. the relative minimum is measured at WAP level and not at P_{min} level, so the indicator of reference is the excise duty yield at WAP (EDY);
2. the requirement is conditional to WAP level, but since an increase in EDY also cause an increase of WAP level (of the extent of the 'pass-through elasticity'), there are feedback effects to consider, and we have therefore applied a recursive calculation technique;
3. the relative minimum requirement can be derogated by MS meeting the 'escape clause' of EUR 115 per 1000 cigarettes. To take this into account, we have firstly filtered out the MS that in the baseline year (2010) were not compliant with the 60% requirement but were already above the escape clause threshold. Then, for the remaining non-compliant countries, we have estimated separately the EDY increase needed to meet the 60% requirement (point 2) and the EDY increase needed to meet the EUR 115 requirement, and retained the smallest between the two. In other words, we have estimated which of the two conditions would be met first.

The results are summarised in Table 4.29. In particular:

- In the baseline year (2010) only six countries were not compliant with both the 60% requirement and the escape clause. For three of them, the 60% condition was closer to reach, while for the other three it was easier to reach the escape clause threshold.
- Combining the two estimates and retaining only the condition easiest to reach, it results that for all countries except one a relatively small increase of EDY was necessary to comply with the Directive requirements. Converting the EDY effects into WAP effects (using the appropriate pass-through elasticity), it emerges that for all countries but one the WAP increase caused by the EU relative minimum revision is below the level that MS would have spontaneously reached even in the absence of this requirement.

[306] Of course, many of these countries were under the transitional period derogation, but this is of limited relevance for the analysis, since the bottom line is that in the period reviewed (i.e. until 2017) they were expected to bring their excise duty level to at least EUR 90. More precise estimations will be possible as soon as the actual impact on 2018 WAP and EDY levels will be available.

- So, only a net effect of 20% on the WAP level in one country can be attributed to this EU provision.[307]

Table 4.29 – Estimated net impact of the 60% incidence requirement on the WAP of cigarettes in Member States

MS	EDY on WAP (2010)	EDY /WAP	Required increase to meet 60% incidence (in%)	Required increase to meet EUR 115 (in%)	Lowest increase required	Pass-through elasticity impact on WAP (%)	Net impact on WAP
AT	**108.1**	**57.1%**	23.3%	6.4%	6.4%	3.2%	Nil
BE	134.6	59.4%	-	-	-	-	-
BG	77.5	68.9%	-	-	-	-	-
CY	105.4	64.5%	-	-	-	-	-
CZ	**80.4**	**58.8%**	9.0%	43.0%	9.0%	8.5%	Nil
DE	139.4	60.6%	-	-	-	-	-
DK	132.5	57.5%	-	-	-	-	-
EE	69.9	63.4%	-	-	-	-	-
EL	105.2	67.2%	-	-	-	-	-
ES	105.1	63.1%	-	-	-	-	-
FI	129.9	60.1%	-	-	-	-	-
FR	173.4	64.2%	-	-	-	-	-
HR*	**66.0**	**52.2%**	96.9%	74.2%	74.2%	55.7%	20%
HU	**65.9**	**59.6%**	2.8%	74.5%	2.8%	2.8%	Nil
IE	260.7	61.6%	-	-	-	-	-
IT	119.4	58.2%	-	-	-	-	-
LT	65.2	60.4%	-	-	-	-	-
LU	**103.1**	**57.2%**	22.2%	11.6%	11.6%	11.0%	Nil
LV	69.9	63.2%	-	-	-	-	-
MT	116.0	61.7%	-	-	-	-	-
NL	140.7	59.5%	-	-	-	-	-
PL	71.0	61.2%	-	-	-	-	-
PT	107.3	62.2%	-	-	-	-	-
RO	74.8	62.6%	-	-	-	-	-
SE	127.7	51.5%	-	-	-	-	-
SI	**77.1**	**58.4%**	12.3%	49.2%	12.3%	9.4%	Nil
SK	84.3	63.5%	-	-	-	-	-
UK	205.9	65.7%	-	-	-	-	-

Source: *Author's elaboration based on EDT (for excise duty levels and WAP), Eurostat (for HICP of tobacco), and own econometric analysis.*
Note: *(*) the baseline year for HR refer to 2012. The 'pass-through elasticity impact on WAP' is defined as the expected price increase following the increase of excise duty needed to reach either the 60% condition or EUR 115, which is the lowest. The net impact of EU minima on WAP is the ratio between the estimated price with EU minima and without EU minima revision.*

➢ IMPACT OF EU MINIMA ON FCT

The last piece of the analysis regards the net impact of EU minima on the price of FCT. The EU minima for FCT includes a fixed minimum requirement (EUR 54, at end of 2017) and a relative minimum (46% at end of 2017). Unlike for cigarettes, these are alternative and not cumulative provisions so it is sufficient for MS to be compliant with either one of the two requirements. In this sense, the two requirements should be assessed jointly, much in the same way we have done for the cigarettes EU relative minimum and the 'escape clause'. However, the FCT tax regime presents a further complexity, i.e. while the EUR 54 condition apply to all price categories the 46% condition is referred to WAP level. Against this background we have proceeded as follows:

[307] In general, the counterfactual analysis has returned significant net effects especially for HR. Keeping in mind the general limitations for the assessment of 'real' country-level trends it can be said that these results are the consequence of the fact that when it joined the EU, HR had tax levels much lower than the EU average and – despite the special transitional period granted in the accession agreement – it nonetheless had to reach EU minima levels by the end of 2017. In other words, the gap had to be filled in a shorter period of time so the tax increase was steeper than the EU average.

1. First of all, we have identified the group of MS that were not compliant with neither of the two EU minima in the baseline year (2010).
2. Then, we have analysed the impact of the two requirements separately: the EUR 54 requirement has been measured against the excise duty applied at P_{min} level, while the 46% requirement against the WAP level (taking into account of 'feedback effects', as described previously in relation to cigarettes). The impact on the respective price indicator has been estimated using the pass-through elasticity rate calculated with the econometric analysis. Due to the variability of country-specific pass-through rate for FCT, partly due to measurement issue, we chose to apply the overall EU rate to all MS (0.63).
3. At this point we have assumed that the two conditions could be assimilated, meaning that the different reference indicator (P_{min} or WAP) did not eventually matter for the analysis since increasing excise duty at WAP would *de facto* increase by a very similar amount also the excise duty at P_{min} level and *vice versa* (there is generally a small difference between P_{min} and WAP level, and in a few MS we had to assume that they coincide). At this point, we have retained the value corresponding to the 'lowest increase required' (i.e. the condition that would be met first).
4. Finally, we have developed the two counterfactual scenarios 'with' and 'without' the EU minima and compared them, as described in the previous impact tables.

The outcomes of the analysis are summarised in Table 4.30 overleaf. In particular:

- In the baseline year (2010) seven MS were not compliant with both EU minima requirement. For most of them the fixed minimum condition was closer to reach than the relative condition, so it determined the benchmark for the calculation of net impacts.
- After applying the appropriate 'pass-through elasticity' rates, it emerges that the impact apparently induced by EU minima on price levels is positive for six out of the seven countries considered (i.e. greater than the 30% increase registered in non-affected MS).
- For these countries the estimated net effect of the Directive on FCT WAP ranges between 9% and 21%. This means that in all likelihood the EU minima 'made a difference' in both the accessibility and the affordability of FCT in these countries.

Finally, we have tested the extent of the possible convergence in the price levels of FCT and cigarettes deriving from the above impacts. In particular we have calculated the ratio between the P_{min} of cigarettes and the WAP of FCT for all countries under both scenarios 'with' and 'without' EU minima revision.[308] The results were mixed: in some four countries the ratio is smaller by a few percentage points under the 'with EU minima' scenario, indicating some beneficial effects in closing the price gap; but in three others, the gap has seemingly widened. This is the consequence of situations where the EU minima on cigarettes did produce an impact, while the minima on FCT did not. Such effects evidently depend on country's initial conditions and cannot be easily controlled.

[308] The standard conversion of 0.75g = 1 stick has been used for FCT.

Table 4.30 – Estimated net impact of EU minima on the price of FCT in Member States

MS	EU fixed minimum of EUR 54			EU relative minimum of 46%			Lowest pass-through elasticity impact on price	WAP increase scenario – <u>without</u> EU minima	WAP increase scenario – <u>with</u> EU minima	Net impact on WAP
	ED on P_{min} (2010)	Required increase to meet EUR 54 (in%)	Pass-through elasticity impact on P_{min} (%)	EDY /WAP incidence (2010)	Required increase to meet 46% incidence (in%)	Pass-through elasticity impact on WAP (%)				
AT	39.5	-	-	47%	-	-	-	125	125	-
BE	30.0	80%	51%	41%	39%	25%	25%	106	106	
BG	51.1	-	-	51%	-	-	-	130	130	-
CY	..	..	..	..	..	..	..	..	..	..
CZ	52.7	-	-	54%	-	-	-	128	128	-
DE	49.8	-	-	52%	-	-	-	132	132	-
DK	76.9	-	-	48%	-	-	-	209	209	-
EE	32.0	69%	43%	34%	243%	154%	43%	123	135	10%
EL	69.0	-	-	69%	-	-	-	188	188	-
ES	35.9	-	-	48%	-	-	-	117	117	-
FI	58.9	-	-	60%	-	-	-	160	160	-
FR	97.2	-	-	59%	-	-	-	221	221	-
HR*	31.5	71%	45%	38%	88%	56%	45%	99	120	21%
HU	20.1	-	-	52%	-	-	-	64	64	-
IE	220.3	-	-	47%	-	-	-	606	606	-
IT	61.6	-	-	61%	-	-	-	156	156	-
LT	32.2	68%	43%	30%	137%**	87%	43%	141	155	10%
LU	23.0	135%	85%	38%	86%	54%	54%	78	93	19%
LV	32.5	66%	42%	29%	148%**	94%	42%	146	159	9%
MT	..	..	..	..	..	..	..	..	..	..
NL	54.2	-	-	50%	-	-	-	151	151	-
PL	37.2	-	-	62%	-	-	-	96	96	-
PT	38.3	-	-	50%	-	-	-	111	111	-
RO	81.0	-	-	41%	-	-	-	260	260	-
SE	153.1	-	-	53%	-	-	-	374	374	-
SI	35.0	54%	34%	35%	171%	108%	42%	129	141	9%
SK	64.1	-	-	48%	-	-	-	173	173	-
UK	142.3	-	-	42%	-	-	-	438	438	-

Source: *Author's elaboration based on EDT (for excise duty levels), Euromonitor International (for the estimation of P_{min}), Eurostat (for HICP of tobacco), own econometric analysis.*

Legend: *P_{min} =lowest market price (based on Euromonitor International store checks); ED=excise duty; (..) = unavailable.*

Note: *(*) the baseline year for HR refer to 2012. (**) for LV and LT, the algorithm did not return valid results due to the 'feedback effect', so instead of the average EU pass-through elasticity rate of 0.63, we have applied a lower pass-through elasticity rate (0.38) that is the Latvian rate estimated econometrically. This assumption has no practical effect on the outcomes since for both countries the EUR 54 requirement was closer to meet.*

- **ULTIMATE IMPACT ON DEMAND AND TOBACCO CONTROL OBJECTIVES**

The specific added value of the Directive on decreasing smoking prevalence has been calculated in two steps. First of all, we have calculated the ***number of Europeans who quit smoking*** in the period examined both at EU level and in individual MS. To reduce the risk of distortions caused by possible point estimate errors in the start and end years of reference, we have triangulated Eurobarometer-based estimates with other national and international sources. In particular, we have gathered information directly from MS on the sources they use to monitor tobacco consumption and regressed all available estimates (national, WHO, Eurostat-EHIS, Eurobarometer) at the MS level by means of a minimum square estimator. Applying the results to the size of MS population (+15 years), we have derived 'normalised' linear trend of the number of smokers in each EU country between 2009 and 2017. As Table 4.31 shows the differences between the modelled estimates obtained and the Eurobarometer-based trend can be significant in some countries,[309] but not that much at the EU aggregate level. It emerges that over the 2009-2017 period the total number of regular smokers in Europe has decreased by some 14 million units, from some 117 million in 2009[310] to some 103 million eight years later.

Table 4.31 - Smoking prevalence trends across the EU between 2009 and 2017

MS	Estimated no. of smokers (million)			Smoking prevalence %		
	2009	2017	Difference	2009	2017	Variation (in % points)
AT	2.2	2.0	-0.2	31.0%	27.9%	-3.1%
BE	2.4	2.1	-0.3	26.7%	23.5%	-3.2%
BG	2.4	2.2	-0.2	36.2%	33.1%	-3.1%
CY	0.2	0.3	0.0	33.7%	35.6%	1.9%
CZ	2.5	2.5	0.0	28.3%	27.7%	-0.6%
DE	18.0	17.5	-0.5	27.8%	27.2%	-0.6%
DK	1.2	0.9	-0.4	27.5%	18.7%	-8.8%
EE	0.3	0.3	0.0	31.9%	28.8%	-3.1%
EL	3.6	3.3	-0.3	41.6%	37.7%	-3.9%
ES	12.7	10.6	-2.1	32.4%	27.1%	-5.3%
FI	1.0	0.8	-0.2	21.6%	17.5%	-4.1%
FR	14.4	14.3	-0.1	30.2%	30.0%	-0.2%
HR	1.2	1.2	-0.1	32.0%	30.7%	-1.3%
HU	2.9	2.3	-0.6	35.2%	27.6%	-7.6%
IE	0.9	0.8	-0.1	27.3%	22.2%	-5.1%
IT	12.6	10.9	-1.7	24.6%	21.0%	-3.6%
LT	0.9	0.7	-0.2	30.1%	23.3%	-6.8%
LU	0.1	0.1	0.0	24.4%	21.9%	-2.5%
LV	0.5	0.6	0.0	36.0%	37.8%	1.8%
MT	0.1	0.1	0.0	25.2%	24.7%	-0.5%
NL	3.4	3.0	-0.4	25.8%	22.5%	-3.3%
PL	10.5	8.6	-1.9	32.4%	26.4%	-6.0%
PT	2.3	1.9	-0.4	28.8%	23.9%	-4.9%
RO	5.3	4.5	-0.7	28.8%	24.9%	-3.9%
SE	1.3	1.1	-0.1	16.3%	14.5%	-1.8%
SI	0.4	0.4	0.0	24.1%	24.8%	0.7%
SK	1.1	1.3	0.2	24.3%	28.4%	4.1%
UK	13.0	9.0	-4.0	25.4%	17.3%	-8.1%
EU*	**117.3**	**103.0**	**-14.3**	**28.6%**	**25.0%**	**-3.6%**

Source: *Authors' elaborations based on Eurobarometer, Eurostat, WHO and national surveys from MS public health authorities.*
Note: *(*) In this table, the EU prevalence (in %) represents the weighted and not the simple MS average.*

[309] So, for instance, the number of smokers in Italy and Portugal keeps decreasing, it remains as stable in France as in Germany, and it decreases less dramatically in Sweden than it might appear from Eurobarometer data only.
[310] There are no estimates of smoking prevalence for year 2010, which is our baseline for the evaluation of the Directive, so we have retained 2009 data as the closest available measurement. Incidentally, it should be noted that Eurobarometer 2010 is based on fieldwork conducted in October 2009, so we assume that these figures are sufficiently consistent with our baseline.

In the second step, we have estimated what shares of ***smoking prevalence decline can be attributed to the Directive*** based on the results of the counterfactual analysis carried out in the previous subsection. To this end, we have estimated the reduction in the demand that can be associated to the 'net effect' of the Directive - i.e. the 'extra' price that appears connected to the revision of the EU minimum rates – using the price elasticity coefficient of -0.54 that we have estimated econometrically. It is important to underline that such coefficient regards the overall demand of tobacco products related to a price index that includes the weighted price levels of the different tobacco products. So, the 'net effect' of the Directive on the price levels of FCT and cigarettes had to be combined in a compounded price index effect that takes into account the respective weight of the two products in the national market considered (assuming a 0.75g=1 stick equivalence for FCT). As Table 4.32 shows, the compounded effect of the revision of EU minima on the price index in the eight countries concerned can be associated to a demand reduction ranging from less than 1% up to some 10%. If related to the total EU-level consumption of cigarettes and FCT, this reduction amounts to some 0.4% overall.

Assuming that this decline of consumption has been equally shared between the reduction of smoking prevalence and the reduction of smoking intensity (see Section 4.4.3.2), it results that the Directive directly contributed to roughly 243,000 fewer smokers in the EU.[311] In other words, the revised EU minima could be credited of ca. 1.7% of the total reduction in smoking prevalence registered since the adoption of the Directive, or 4.2% of the reduction roughly attributable to the decline of affordability.

Table 4.32 - Estimated reduction in the demand and in the number of smokers associated to the net impact of the Directive (2010-17)

Affected MS	Net impact of EU minima on cigarettes prices**	Net impact of EU minima on FCT prices	Compounded impact on the price index of tobacco	Model-estimated reduction in demand	Virtual reduction of smokers associated to demand reduction (population units)
EE	+8%	+10%	8.1%	4.4%	5,900
HR	+20%*	+21%	20.0%	10.8%	62,200
HU	+17%	nil	12.4%	6.7%	76,500
LT	+14%	+10%	13.9%	7.5%	24,800
LU	nil	+19%	6.9%	3.7%	1,900
LV	+4%	+9%	4.1%	2.2%	6,100
PL	+3%	nil	2.8%	1.5%	65,700
SI	nil	+9%	0.6%	0.3%	400
EU 28				**0.4%**	**243,400**

Source: *Authors' extrapolations based on the result of the counterfactual analysis, own-estimated smoking prevalence and the results of the econometric analysis.*
Notes*: (*) according to the counterfactual analysis, HR registered net effects from both EU minima requirements, so we have assumed here that the highest impact (associated to the 60% incidence requirement) prevails. (**) It is assumed here that the net increase in P_{min} due to EU minima reflects also on WAP level. This may cause a certain overestimation of the impact on the demand, since an increase of prices in the low segment of the market is not always and entirely associated to a similar increase in the premium segment.*

The theoretical ***social costs savings*** associated with the reduction of consumption estimated above can be roughly estimated in the region of EUR 2.5 bn (see Table 4.33 below). These values have been elaborated for the purpose of complementarity with the impact analysis of TPD2 and using, in agreement with the Commission, similar assumptions. However, they have to be considered as figurative, since there is an evident time-lag between prevalence reduction and the materialisation of benefits. Such time-lag cannot be cannot be measured precisely -especially when it comes to reduced morbidity / mortality – but it can be safely assumed that the bulk of benefits will become apparent in

[311] It is worth repeating that the estimates predicted by the econometric model do not lend themselves to explain country-specific trends and situations. In fact, there can be differences in price elasticities between markets, and factors like substitution with other tobacco products and/or non-domestic legal or illegal products may play different roles across countries. So possible discrepancies between the modelled estimates and the survey-based estimates (as in the case for instance of Latvia) can be certainly attributed to such local factors.

the medium/long run. For the same reason, in the period observed the actual burden of smoking have actually increased, as a result of past behaviours and trends.

Table 4.33 - Estimated figurative reduction in the social costs of smoking (€ million)

Type of social costs	EUR million
Value of lives saved	-2,307
Healthcare costs	-120
Productivity costs	-36
TOTAL	**-2,463**

Source: *Authors' estimates based on extrapolations from the TPD2 impact assessment*

4.5.2 The EU added-value perceived by national authorities

The outcomes of the theoretical simulations carried out in the previous section can be usefully complemented with national authorities' views and perceptions about the added-value of the EU excise legislation. This analysis is based on the evidence collected from the targeted consultation of tax authorities (24 participating countries) and of public health authorities (15 participating countries), complemented by some face-to-face interviews conducted in a few MS.

A vast majority of respondents to the targeted consultation of ***fiscal authorities*** – and well above the number of MS for which a direct impact of EU minima is apparent – have acknowledged the Directive had some impact on informing their tax policies and setting their duty levels. As already seen in the 'Effectiveness' section, such impacts regard primarily raising national tax levels on manufactured cigarettes and FCT, both directly (i.e. to comply with requirements) or indirectly, to keep-up with neighbouring MS and general trends (Table 4.34).

Table 4.34 – Tax authorities' feedback on the impact of EU excise legislation

Question: To what extent the EU rules had an impact on your country's tax policies in the period 2011 – 2017?				
	Direct impact	**Indirect impact**	**No impact**	**Don't know**
Impact of EU minimum rates on the national excise duty levels for cigarettes	14	3	7	0
Impact of EU minimum rates on the national excise duty levels for fine-cut-tobacco	11	6	7	0
Impact of EU minimum rates on the national excise duty levels for cigars and cigarillos	6	6	12	0
Impact of EU minimum rates on the national excise duty levels for other smoking tobacco	9	6	9	0
Impact of the mixed structure requirements on the national excise duty structures for cigarette (i.e. the mix of specific and ad valorem component)	10	7	7	0

Source: *Tax authorities targeted consultation (24 respondents).*

The impact of the Directive on price and market trends of the other tobacco products was seemingly less 'direct', and typically materialised in using EU averages or tax trends in neighbouring countries as benchmarks for domestic policies. The least impact is reported with respect to cigars and cigarillos, with the notable exception of the effects of the special derogations granted to Germany and Hungary under Art. 4.2 until 2014.

Most of the added value generally attributed to the Directive is of technical nature. The Directive is viewed as the fundamental legal framework for the coherent classification of tobacco products across the EU and for the establishment of a harmonised tax collection mechanism within the Single Market (Table 4.35). Conversely, the results of the

consultation, in line with our assessment (see Section 4.4.1.1), indicate that there is far more scepticism with the Directive's objective of promoting tax levels convergence across MS. This limited impact is registered with both cigarettes and FCT, with significant convergence reported by just a couple of MS. The Directive have seemingly prompted some harmonisation of excise duty structure for cigarettes - less so for other tobacco products.

Table 4.35 – Tax authorities' feedback on the success of the harmonisation of tax regimes

Question: One of the main objectives of the EU tobacco excise legislation is to reduce differences in the tax regimes applied to tobacco products across Member States. How do you rate the results achieved in this respect in the period 2011-2017?					
	Very significant	**Quite significant**	**Somehow significant**	**Not significant**	**Don't know**
Reduction of differences in tax levels of cigarettes across the whole EU	1	5	8	10	0
Reduction of differences in the tax levels of cigarettes in your country's geographical region	3	5	5	6	3
Reduction of differences in the tax levels of fine-cut tobacco in your country's geographical region	2	5	6	6	3
Harmonisation of excise duty structures for cigarettes (the mix of ad valorem and specific component)	3	6	7	5	3
Harmonisation of excise duty structures for other tobacco products	2	4	10	4	4
Coherence in the classification of tobacco products across the EU, based on the harmonised categories	2	11	5	4	2
Harmonisation of tax collection mechanisms	3	7	2	2	10

Source: *Tax authorities targeted consultation (24 respondents).*

As a result of this limited harmonisation, it is little surprise that a somewhat modest direct impact of the Directive in decreasing cross-border shopping is reported. This is, in fact, an impact only a couple of MS have acknowledged. Interestingly, the majority of fiscal authorities sees some benefits in the fact that the Directive works to discourage 'competitive taxation' of different tobacco products. However, it is not considered having relevant effects in ensuring fairer competition between large and small players. Actually, harmonised provisions and rates would naturally come at the competitive advantage of relatively large players as some half of respondents are seemingly ready to concede.

Table 4.36 – Tax authorities' feedback on the overall contribution of harmonisation to the functioning of the internal market

Question: To what extent have the harmonisation of tax regimes delivered concrete benefits for the functioning of market and competition in your country?					
	High Extent	**Moderate extent**	**Limited extent**	**Not at all**	**Don't know**
Reduction of tax-related 'cross-border shopping'	2	5	8	6	3
Fairer competition between domestic operators and operators from other EU countries	3	4	5	2	10
Fairer competition between different tobacco product categories	4	6	8	1	5
Fairer competition between large and small players	2	3	8	3	7
Enhanced/better stability of prices and demand in the domestic market	1	6	6	4	6

Source: *Tax authorities targeted consultation (24 respondents).*

Public health authorities of the Member States have generally recognised that the reduction in smoking prevalence would have probably been lower without the contribution of the Directive, particularly as far as impact on the young is concerned (consistently with our findings on the impact of EU minima on price accessibility). Only one respondent

dissented with this opinion assuming that the Directive *de facto* pre-empted the adoption of much bolder policy measures in support of tobacco control objectives.

Table 4.37 – Public health authorities' feedback on the overall contribution of the Directive on smoking prevalence in their countries

Question: What would have been the reduction in smoking prevalence in your country without the minimum rates and the other provisions introduced by Directive 2011/64?						
	Much higher	**Higher**	**Not different**	**Lower**	**Much lower**	**Don't know**
The reduction of overall smoking prevalence would have been…	0	1	2	5	1	5
The reduction of smoking prevalence among youth would have been…	0	1	2	4	2	5

Source: *Public health authorities targeted consultation (15 respondents).*

On the other hand, according to public health authorities the smoking prevalence has not decreased as it should have been in the period considered, and most of them attribute this failure, at least in part, to insufficient taxation. In the same veins, various public health interviewees saw some link between the 'conservative' minimum rates envisaged in the Directive and the fact that taxation has not increased enough in a number of MS (including those that were already compliant with EU minima). At the same time, public health authorities seemingly perceive domestic tax rates more dependent on foreign tax rates than what fiscal authorities would recognise.[312]

Public health authorities are generally cautious in establishing a link between the unsatisfactory tax-driven reduction in smoking prevalence and the provisions of the EU excise legislation. But they keep seeing some moderate (possibly indirect) impact, and are persuaded that the EU legislation should adopt stronger objectives concerning the harmonisation of prices EU-wide.

Table 4.38 – Public health authorities' satisfaction with tax policies perceived effectiveness of the Directive

A) Question: If trends were not in line with expectations / policies or plans, please indicate whether this was mostly due to taxation or other factors		**B) Question: If insufficient taxation was a cause of unsatisfactory reduction of smoking prevalence, to what extent can this failure be attributed to ineffective EU excise legislation?**	
Unsatisfactory results were mostly caused by insufficient taxation	1	High extent	2
Unsatisfactory results were partly caused by insufficient taxation	9	Moderate extent	5
Unsatisfactory results were mostly caused by factors other than taxation	0	Modest extent	2
		Not at all	0
Don't know	1	Don't know	1

Source: *Public health authorities targeted consultation (15 respondents)*

[312] As seen, tax authorities are almost equally split between those who declare being influenced by the general level of the excise duties in the EU and/or in neighbouring countries and those who maintain these factors play no role at all in their decision-making process.

EU ADDED VALUE - SUMMARY OF KEY FINDINGS

1. The revised EU minima have raised cigarettes and FCT price levels in some Member States more than what would have happened in the absence of the Directive. Such additionality was greater for the fixed minimum amount requirement than for the minimum incidence requirement. However, such effects appear of fairly limited magnitude and regard only a few EU countries.
2. By consequence, it can be affirmed that the Directive provisions contributed to reducing the consumption of tobacco products and smoking prevalence in the EU, although the extent of such contribution is limited.
3. Coherently, most public health authorities of the Member States are not satisfied with the impact of the Directive on tobacco control targets and call for bolder fiscal measures.
4. The position of tax authorities is mixed: on the one hand there is a general recognition of the added-value of the EU tobacco excise legislation and the need to maintain it, on the other hand on specific issues, like convergence of price levels and cross-border shopping, the majority of Member States have a critical view.

4.6 Efficiency

The evaluation criterion of efficiency can be examined at two distinct levels, which require a fairly different approach. The first concerns the 'input/output' ratio of the intervention on the whole, and the possibility of achieving the same results at 'less costs' (typically defined as 'cost-effectiveness'). In the case of the Directive this dimension is of limited significance due to the peculiarity of the intervention and some methodological limitations concerning objective quantification. Nonetheless, we have attempted in Section 4.6.1 an assessment of the ***overall cost-efficiency of the Directive*** based on the counterfactual scenarios developed in previous Section 4.5.

The second, more pertinent, dimension of the efficiency analysis regards the ***regulatory burden*** of the Directive (Section 4.6.2), namely the additional compliance costs imposed on MS administration and economic operators in relation to the accrued benefits. The analysis focuses on stakeholders' perspectives on specific provisions of the Directive and the areas where clarifications and/or simplifications seem feasible.

4.6.1 Overall cost-efficiency of the Directive

The approach to the overall cost-efficiency of the Directive - i.e. the ratio between its inputs and outputs – requires some preliminary methodological considerations concerning the nature of the intervention being evaluated and the types of inputs and outputs involved. In particular:

(1) The nature of the inputs of the Directive does not imply clear and measurable costs. The provisions consist of legal obligations for MS concerning the harmonisation of e.g. products definitions, minimum thresholds etc. but no expenditure measure is envisaged. In fact, the main 'implementation' costs related to the EU excise system, such as EMCS and the other obligations related to the duty suspension regime, actually stem from the 'Horizontal Directive' (Directive 2008/118) and its implementation acts.
(2) The intended results of the Directive are clear but also present measurement issues, both at the level of immediate outputs (whose measurement indicators consist in simple compliance dummies) and at the level of impacts, which are either poorly quantifiable (e.g. fair competition and market functioning etc.) or hardly comparable to inputs due to multifactorial causal chains (public health protection).

These considerations were shared with the Commission in the initial design phase of the Assignment and, on this basis, limited emphasis was then placed on this dimension of the evaluation of Directive's performance.

In this Section, we deal with the issue of the overall cost-efficiency, anticipating the approach used in Volume 2 of this Study for comparing the efficiency of different policy scenarios. Such approach consists of focusing the analysis on two main measurable indicators of input and output, namely:

- As regards inputs, we can consider the amount of tax charges as a valid and straightforward proxy of the global economic costs of the legislation. Evidently, tax charges are not deadweight costs but rather distributional ones: the tax burden for tobacco consumers becomes a benefit for country's revenues.
- For the outputs, we have selected the reduction in the number of smokers, as a proxy for the social costs savings potentially generated by fiscal policies (although 'virtual', since as discussed in Section 4.5 there is a significant time-lag between smoking prevalence reduction and the materialisation of benefits on mortality / morbidity rates).

In brief, the ratio between the two variables selected can be seen as an indicator of how well the tax charge imposed on smokers converts into potential savings on the overall burden of smoking, hence a high-level measurement of the cost-efficiency of tax policies. This cost-efficiency index can be expressed as the annual excise levied per one fewer smoker, so the lower the index level the higher the efficiency registered.

As shown in Table 4.39, we have eventually compared the actual cost-efficiency index for the concerned period, with the hypothetical value of the index in the absence of the Directive, using the counterfactual scenario developed in the previous Section 4.5. The results confirm that EU minima revision have determined an improvement of the overall efficiency, as compared to the counterfactual scenario. However, such difference is small, in line with the limited reduction of smoking prevalence that have been attributed specifically to the Directive.

Table 4.39 – Overall cost-efficiency index of the EU minima as compared to the counterfactual scenario

	Total fiscal revenues (€ million)	Fewer smokers in the period	Efficiency index (cost of one fewer smoker, in €)
Actual scenario (with the revision of EU minima)	80,952	14,290,000	5,665
Counterfactual scenario (without the revision of EU minima)	80,806	14,056,000	5,749

***Source**: Authors' estimates based on EDT data (revenue) and the counterfactual scenario analysis developed in Section 4.5 above.*

4.6.2 Regulatory burden of the Directive

By 'regulatory burden' we intend here the additional costs eventually caused by the Directive, which stakeholders would have not incurred anyway if the Directive had not been in place. With respect to the main components of the 'compliance costs', according to the *Better Regulation* terminology[313], it should be noted the special status of 'charges' in the context of this Directive. In fact, direct charges in the form of excise duty are evidently the very subject of the regulation and not a contingent effect of it, as it is the case with any other type of intervention. In this sense, tax rates and revenues have been treated in the Study as an intended outcome and examined separately from the other types of regulatory burden that are the subject of this subsection, which includes the cost categories designated in the *Better Regulation* as 'administrative and substantive compliance costs' (and cost savings) and, in the case of public authorities, 'implementation and enforcement costs'.

It should be said at the outset that, in the case of the Directive, the ***compliance costs for economic operators and tax authorities*** are minimal, for the following reasons:

- The Directive essentially concerns the harmonisation of certain aspects of pre-existing national excise systems, and in particular the alignment of definitions and the respect of specific thresholds in setting national rates and structures. In this sense, the administrative and compliance costs borne by operators depend primarily on national frameworks and not on the Directive's requirements.
- Similar considerations apply to implementation and enforcement costs for tax authorities that in the case of Directive are limited to the regulatory actions necessary to meet EU thresholds (e.g. setting rates above a certain levels) and to transmit to the Commission information required under Art. 19 (rates, price levels, and quantities released for consumption). In fact, it can be argued that monitoring and enforcement activities relate

[313] See Tool #59 of the *Better Regulation* Toolbox.

again to the national administrative and legal framework and would be carried out anyway, even in the absence of the EU legislation.

- To evaluate specifically the efficiency of the Directive it is necessary to distinguish between the burden directly caused by it and that stemming from other EU-level policies and obligations, and in particular Directive 2008/118 (which oversees all arrangements concerning excise systems and the movement of excise goods on the whole - including the EMCS) and the numerous administrative and compliance obligations deriving from the TPD2. In fact, the near totality of comments on the regulatory burden collected through the interviews and the consultations of stakeholders actually referred to pieces of legislation other than Directive 2011/64.
- Of the provisions laid down in the Directive, especially definitions and classification rules qualify for an analysis of the regulatory burden since, as discussed below, their robustness and appropriateness (or lack of it) have direct consequences on the functioning of the excise system and the time and financial costs for administrations and businesses alike. Revisions of minimum rates or of the excise structure thresholds do not *per se* imply a change of the regulatory burden (except 'direct charges' – as discussed above).
- Finally, it should be considered that most of the main provisions of the EU tobacco excise legislation had been introduced prior to Directive 2011/64 and therefore their costs, if any, should be attributed to the previous legislation. But since certain measures are in place since the 1970s or the 1990s, such assessment is irrelevant.

Therefore, the type and magnitude of regulatory costs (other than tax charges) specifically attributable to the Directive do not support a fully-fledged quantification by means of 'standard cost model' or similar approaches. So, in the following sub-sections the analysis of the possible burden of the Directive is centred on MS authorities and stakeholders' own assessment and mainly focuses on the identification of problematic areas possibly requiring revision and/or simplification.

➢ THE TAX AUTHORITIES' PERSPECTIVE

According to the tax authorities of the Member States interviewed, the Directive is not a source of major implementation problem or administrative burden. Actually, the only new measures, introduced in 2011, that envisaged some substantial action from tax authorities were: (1) a greater amount of information (statistical data on excise duty and price and quantities of tobacco products) to be transmitted by MS to the Commission for the purpose of the 4-year reporting; and (2) the shift from the immediately available 'most popular price category' (MPPC) to the statistically-calculated 'weighted average price' (WAP) as the benchmark of reference. All other changes regarded measures already in place (i.e. the revision of EU minimum levels or mixed structure threshold) or fine-tuning of existing definitions. As Table 4.40 shows, all in all the reform has been found reasonably cost-effective by the MS. In particular:

- There is a general consensus among the national tax authorities that ***the regulatory burden of the tobacco excise legislation on the whole is acceptable*** and fully justified by the benefits it produces. The only country that reported it as slightly excessive has omitted to explain the specific reasons why. So, it is unclear whether these relate to excessive reporting requirements or else. At any rate, it is worth highlighting that none of the tax authorities consulted was in the position to quantify the direct costs envisaged by the EU legislation for two main reasons: (1) they could not be extrapolated from the general functioning of the national tax administration and ordinary procedures and practices, and (2) any 'extra' cost specifically related to the Directive, i.e. adjusting or communicating rates to the Commission were nonetheless deemed negligible.

- Since hardly any radical innovation was introduced, it was a common feedback from the authorities consulted that ***the regulatory burden has not changed with the adoption of Directive 2011/64***. In this respect it is worth underlining that the shift from MPPC to WAP has been generally praised by stakeholders, since it has removed the risk of manipulative practices from dominant players and the ensuing market distortions and adverse effects on tax revenues. In this sense, this reform has improved the overall operational efficiency of the excise system.

To put efficiency considerations into a better perspective, it is worth reminding here that the simplification of the tax collection mechanism and the need to reduce the related administrative costs have been considered a sort of middle-rank priority in the EU in the 2011-17 period. In fact, for some half of tax authorities consulted it used to be a high or very high-ranking policy objective, but the other half considered it an intermediate or even low priority. In general, efficiency considerations are expected to play a more crucial role among policy priorities in the future, since tax administrations are reportedly being required to deliver more results with the same or lower resources. More specifically, four national authorities have explicitly mentioned that efficiency factors are going to influence more and more policy approaches and operational set-ups in the next few years.

Table 4.40 – Tax authorities' perception of regulatory burden connected to the tobacco excise legislation and evolution overtime

A) Question: Overall how do you rate the regulatory burden imposed on Member States authorities by the EU excise legislation? Please indicate the perceived overall magnitude.		**B) Question: How has the regulatory burden evolved in the 2011-2017 period?**	
Acceptable	20	Increase	1
Slightly excessive	1	Stable	18
Definitive excessive	0	Decrease	0
Don't know	3	Don't know	5

Source: *Targeted consultation of tax authorities of the MS (24 respondents).*

The regulatory burden borne by MS authorities in relation to the overall EU excise legislation (i.e. not specifically related to the Directive) includes both 'one-off' costs, such as for adapting the IT systems to specific reforms, and recurrent costs, affecting the daily operations of tax administrations. The second category is viewed as potentially more problematic than the first when it comes to the effects of ***legal uncertainties and the related transaction costs***, such as the laboratory support needed for the classification of uncertain products, dealing with businesses' requests for clarification, managing disputes, etc. These costs are by definition unforeseeable and cannot be budgeted in advance. Moreover, there have been cases where classification issues of new products or 'borderline' products proved to be particularly resource-intensive, as it was the case with the tax treatment of e-cigarettes in MS that introduced an *ad hoc* domestic tax. This finding had previously emerged also from the Ramboll 2014 evaluation, which specifically looked into the cost-efficiency of the administrative arrangements of the EU tobacco excise legislation (not limited to Directive 2011/64): "*The analysis shows that the primary driver [of efficiency issues] is represented by legal uncertainty over the treatment of specific products. Even though the costs at a systemic level are (still) relatively small as disputed cases concern niche products, the impact on the single business/tax administration can be significant. In the case of the tax administration, resources need to be spent on dealing with the dispute thus they are diverted from other tasks. From the perspective of the economic operator, the direct costs of preparing the case (e.g. legal opinions) add up to more indirect costs such as the forgone revenues for a delayed launch of the product, financial distress, etc.*"[314]

[314] Ramboll 2014, pp. 12-13. Another source of administrative burden, according to Ramboll 2014, is the 'dual coding' of tobacco products required by the parallel and not aligned excise and customs classifications. As the EA 2018 results showed, this is actually a minor source of burden in itself, while it is the specific case of the definition of cigarillos that can produce legal and operational issues (as recent CJEU C-638/17 case confirms).

We have therefore examined the burden perceived by tax authorities in relation to a set of issues concerning the definition and classification of certain products, that had emerged from the previous evaluations (Ramboll 2014 and EA 2018), and specifically:

- The definition of ***smoking tobacco*** (Art. 5(1)a). As discussed in Section 4.2.1, there are legal clarity issues with the interpretation of the definition of 'smoking tobacco' laid down in the Directive, which have been exacerbated by the recent CJEU ruling on the C-638/15 on the so-called *Eko-Tabak* case (see Table 4.1) or, more precisely, by the stricter criteria adopted in a couple of MS following the CJEU ruling. The practical consequence has been the emergence of diverging views on the classification of certain semi-processed tobacco as non-exciseable raw tobacco or, conversely, as similar to smoking tobacco, hence exciseable. The burden for the administrations involved, as well as for operators, was high, especially in the aftermath of the adoption of the revised classification criteria. It is therefore not surprising that the 'smoking tobacco' definition is considered by the majority of MS as a possible cause of legal uncertainties and administrative burden (only six MS do not see any problem in relation to this definition), and that the rating has worsened since EA 2018 due to the recent events.
- The definition of ***tobacco refuse*** (Art. 5(1)b). The results of the EA 2018 study showed some issues also with the definition of tobacco refuse and the risk of interpretation disparities. It was however highlighted that practical consequences (in terms of both fraud and administrative burden) had been limited. As Table 4.41 shows, controversial classifications of tobacco refuses appear somewhat of an issue for a minority of relatively large Member States where large tobacco factories are located, but hardly an issue for the others.
- The definition of ***cigars and cigarillos***. As regards the practical consequences of the misalignment of excise and customs definition of cigarillos (see Section 4.2.1 for a review) MS appear evenly divided between countries that have experienced major or moderate problems and those that have not (or only minor ones). This clearly reflects the fact that so-called 'borderline cigarillos' are not marketed in all EU countries, and partly the fact that some MS have seemingly succeeded to manage them by raising the minimum taxation for the category.
- ***Water-pipe tobacco***. Finally, two-thirds of respondents do not to consider the lack of a separate tax category for waterpipe tobacco as an issue. This can be also interpreted as a perceived negative balance between the costs of introducing a separate category (adaptation of IT system, training staff, addressing classification issues, dealing with borderline product risk etc.) and the benefits of having it in place (more appropriate tax regime in place, better identification and monitoring etc.)

Table 4.41 – Tax authorities' perception of legal uncertainties and burden related to specific provisions of the Directive

Question: Please, indicate whether the EU excise legislation provisions below have ever caused specific problems in your country and rate the severity thereof on a scale.				
	Major problem	**Moderate problem**	**Minor problem**	**No problem**
Art 5(1)a on 'smoking tobacco' and the clarity of the provision: "capable of being smoked without further industrial processing"	6	7	5	6
Art 5(1)b on 'smoking tobacco' and the clarity of the provision: "tobacco refuse put up for retail sale"	4	5	2	13
The definition of 'cigars and cigarillos' laid down in Art 4.1 and the misalignment with the corresponding customs definition of the Combined Nomenclature	5	7	2	10
The lack of a specific definition and separate tax category for 'water-pipe tobacco'	2	6	4	12

Source: *Targeted consultation of tax authorities of the MS (24 respondents).*

In conclusion, tax authorities have generally appeared reluctant toward any possible modification of the current articulation of tax categories because of the administrative burden potentially attached to it, not only for the concrete actions required to implement the new categories, but also for the risk that any new distinction would create new legal uncertainties and opportunities for new 'borderline' products. The only exception to this general attitude is represented by ***heated tobacco products.*** In this respect, there seems to be broad consensus on the need to develop a separate tax category, so as to reduce the administrative burden caused by the current highly fragmented legal and classification approaches between MS.

- **INDUSTRY AND OTHER STAKEHOLDERS' PERSPECTIVE**

Similar questions on the operational efficiency and the burden connected to specific provisions of the Directive have been posed to economic operators, NGOs and the general public, in the framework of the Open Public Consultation (OPC). Since the subject matter is fairly technical the majority of respondents (especially individuals) has skipped these questions or provided agnostic answers, so in Table 4.42 overleaf we report feedbacks from main groups of stakeholders. The results can be summarised as follows:

- Considering only answers that include a rating, the most problematic issue seems the absence of a clear definition of 'smoke' and 'smoking' in the Directive, which is possibly creating uncertainties as regards the treatment of novel products. In this sense, OPC results seem to confirm the need to find a proper status to heated tobacco products, to avoid ambiguities and the related risks of unnecessary burden.
- The second most severe issue, in relative terms, concerns the lack of a specific category for water-pipe tobacco, flagged by the majority of respondents as problematic, most likely in connection with the widespread informality / illegality that is perceived around the consumption of this product.
- The definitions of 'smoking tobacco' and of 'refuse tobacco' under Article 5(1) of the Directive are not problematic for most of respondents. However, in the first case, the subgroup of tobacco stakeholders appears more concerned than others, with nearly 50% of respondents considering Art 5(1)a as a moderate or a major problem.
- Only a minority of respondents seems considering the mismatch between the custom and the excise definition of cigarillos as a possible source of undesired issues.

Business-respondents were also invited to indicate other areas perceived as problematic for their activities and an estimation of the burden involved. In practice, none of respondents indicate any burden of such kind, largely confirming the limited effects of the Directive in this respect. The few responses given to this question have come from e-cigarettes operators lamenting the effects of ad hoc taxes adopted in their country of origin – a dimension that will be taken into account in the analysis of policy scenarios for the harmonisation of excise duty on e-cigarettes (see Volume 2).

Table 4.42 – Stakeholders' perception of legal uncertainties and burden related to specific provisions of the Directive

Question: Please, indicate whether the provisions below have ever caused specific problems in your country and rate the severity of the problem.					
		Major problem	**Moderate problem**	**Minor problem**	**Not a problem**
Art 5(1)a on 'smoking tobacco' and the clarity of the provision: "capable of being smoked without further industrial processing"	Tobacco (ext.)	28	22	22	37
	Public Health	1	3	3	2
	E-cigarettes	10	8	11	22
	Other	7	5	16	9
	TOTAL	**46**	**38**	**52**	**70**
Art 5(1)b on 'smoking tobacco' and the clarity of the provision: "tobacco refuse put up for retail sale"	Tobacco (ext.)	12	3	42	39
	Public Health	-	2	2	2
	E-cigarettes	13	10	11	13
	Other	-	5	14	10
	TOTAL	**25**	**20**	**69**	**64**
The definition of 'cigars and cigarillos' laid down in Art 4.1 and the misalignment with the corresponding customs definition of the Combined Nomenclature	Tobacco (ext.)	1	10	18	68
	Public Health	1	4	2	2
	E-cigarettes	9	15	10	14
	Other	3	3	1	27
	TOTAL	**14**	**32**	**31**	**111**
The lack of a specific definition and separate tax category for 'water-pipe tobacco' in the Directive	Tobacco (ext.)	18	24	16	11
	Public Health	3	3	6	2
	E-cigarettes	15	15	11	17
	Other	4	1	2	3
	TOTAL	**40**	**43**	**35**	**33**
The absence of a clear definition of 'smoke' and 'smoking'	Tobacco (ext.)	23	36	10	24
	Public Health	7	8	1	1
	E-cigarettes	52	20	11	10
	Other	7	3	-	22
	TOTAL	**89**	**67**	**22**	**57**

Source: *Open Public Consultation.*
Legend: ***'****Tobacco (ext.)' refers to operators (manufacturers, distributors, retailers, growers) as well as consumers and trade associations active in tobacco sector (including also those active in both tobacco and e-cigarettes sector). 'Public Health' relates to NGOs, medical societies, and other entities active in tobacco control and public health protection. The 'e-cigarettes' category involves operators exclusively active in this sector, as well as consumers and trade associations, advocacy bodies, promoters etc. 'Other' encompasses respondents with no direct interest identified, including economic entities, public administration, NGOs and civil society organisations not linked to tobacco control, universities, research institutes, academicians etc.*

EFFICIENCY – SUMMARY OF KEY FINDINGS

1. The nature and the scope of the measures introduced by Directive has limited impact in terms of regulatory burdens for both public authorities and economic operators. Overall, such burden is considered acceptable and has not changed overtime.
2. There is room to further improve the current situation addressing the legal uncertainties (and the related transaction costs) stemming from the subjective elements of the 'smoking tobacco' definition and the incongruent definitions of cigarillos laid down in the excise and customs classifications. The only area where the current tax categorisation appears inefficient regards the treatment of 'heated tobacco products'.
3. Comparing direct charges (i.e. the tax revenues) with smoking prevalence trends, it emerges that the revision of EU minima introduced by the Directive has led to a slight improvement of the cost-efficiency of fiscal policy with respect to potential reduction of social costs of smoking.

5. EVALUATION CONCLUSIONS AND SUMMARY OF THE POLICY PROBLEMS

5.1 Overview

This conclusive Section of Volume 1 of this Report has the two-pronged purpose of summarising the findings of the retrospective evaluation of Directive 2011/64, described in details in Section 4, and identifying the specific policy problems that might steer a future revision of the Directive. The in-depth analysis of such possible revision and its expected impacts are the subject of Volume 2 of the Study. In particular:

- ***Section 5.2*** provides a high-level ***answer to the overarching evaluation questions*** of the Study, based on the evidence collected and the key findings elaborated.
- ***Section 5.3*** focuses on the ***problem analysis,*** summarising the main issues affecting the achievement of Directive's objectives and the underlying causes, with a view to allow the following development of policy scenarios for the way forward under Volume 2 of the Study.

5.2 Evaluation conclusions

➢ COHERENCE

Overarching question: Are the rates and structures of excise duty applied to manufactured tobacco coherent with other EU policies and international obligations?

Directive 2011/64 is part of a broader EU policy framework that includes among other things the general ('horizontal') excise duty legislation, the customs union legislation, as well as thematic policies such as tobacco control policies and the policies against illicit trade and tax fraud. Additionally, the EU is party to the WHO Framework Convention on Tobacco Control (FCTC) and has therefore committed itself to support its objectives and principles. The results of the Study indicate the Directive is broadly ***coherent with the EU excise and customs framework***, as well as with the overall principles and policies governing the Single Market. At the operational level, this could be enhanced by fixing some issues concerning the definitions of 'smoking tobacco' and 'cigarillos'. The Directive has taken up the FCTC guidelines' recommendations on effective tax policies but according to various public health stakeholders it is ***not sufficiently geared towards the achievement of major results in the area of tobacco control***. There is a formal alignment between the Directive and the EU policy against illicit trade and tax fraud, but explicit cross-references are limited, and there is large room for strengthening connections and synergies, especially as regards the analytical dimension of the impact of taxation on illicit trade.

➢ RELEVANCE

Overarching questions: Do the current minimum rates and structures still correspond to the objectives of the Directive? Do they correspond to the needs of the national tax administrations, ministries of health and subsequently of other stakeholders (economic operators, NGO's and citizens)?

The minimum rates laid down in the Directive have not or limitedly been changing over some few years and have therefore lost their traction on MS fiscal policies. Since 2018, all Member States have seemingly reached the prescribed minimum tax levels so ***the current***

provisions have become of little relevance for the way forward. The only partial exception regards fine-cut tobacco for which there are further increases of EU minima scheduled until 2020. ***Similar considerations apply to the excise structure harmonisation provisions***, whose extreme flexibility translates into a *de facto* irrelevance for the vast majority of EU countries. The policy objectives underlying convergence in tax rates and harmonisation of structures between Member States should be reconsidered, since they might no longer correspond to countries priorities for the near future. Another dimension where the Directive seems no longer 'fit for purpose' is the ***unclear status of novel products***, namely heated tobacco products and e-cigarettes. On all these matters the position of stakeholders is not univocal, in particular not all tax authorities consider the current minima as outdated, and a few of them do not find problematic at all the current status of novel products. This is also the position of the majority of economic operators, whereas the majority of public health stakeholders conversely consider the current provisions as no longer useful.

- **EFFECTIVENESS**

Overarching question: *To what extent have the current minimum rates helped and supported in ensuring the proper functioning of the internal market (including competition)?*

The Directive provisions on minimum excise rates have been ***moderately effective in raising tax levels*** and prices in Member States, especially of cigarettes and fine-cut tobacco, and with particular reference to the low-price segment of the market. The contribution of the Directive to the ***convergence of tax (hence price) levels between Member States has been mixed.*** In fact, the gap between 'high-tax' and 'low-tax' countries has slightly expanded, but EU minimum rates have likely contributed to mitigating such trend. Member States have slightly increased their reliance on specific taxation as opposed to ad valorem, in the period considered, but this process was only indirectly related to the very mild provisions of the Directive in this area, and the evidence of impacts on tax revenue stability or price accessibility is not apparent. ***More concrete impacts seem associated to the recourse to the 'minimum excise duty' (MED)*** provision, e.g. on price convergence and reduction of price accessibility, but the discrepancies in the interpretation and application of this provision between countries persist, possibly diminishing its effectiveness. The steep decline in the consumption of cigarettes registered after 2005 has been partly mitigated by their ***substitution with fine-cut tobacco***. This phenomenon has radically decelerated after 2013 with the contribution of the Directive provisions to reduce the tax (hence price) gap between these two products.

Overarching question: To what extent have the current minimum rates helped and supported in fighting against tax fraud, tax evasion and illegal cross-border shopping?

As a possible consequence of the lack of convergence in price levels between countries, the ***incidence of cross-border flows of duty-paid cigarettes from low-tax to high-tax countries has increased***. At EU aggregated level, the magnitude of flows is limited, but in certain Member States it causes significant tobacco control and tax revenue issues. Overall, ***the illicit trade of non-taxed cigarettes seems declining*** in the EU, but it is reportedly on the rise for other products like 'bulk' tobacco and water-pipe tobacco. Affordability (namely price and income trends) is tightly associated to the demand for illegal products, so the increase of taxation could have had unintended effects on it, but other factors, like geographical position, enforcement capacity etc. did play a major role. At any rates, a precise estimation of these trends is made difficult by the lack of validated

and comprehensive data. In the future, this gap would possibly be bridged by an ongoing Commission's initiative in this area.

Overarching question: *To what extent have the current minimum rates helped and supported in provide a high level of health protection?*

The ***affordability of cigarettes and fine-cut tobacco has decreased*** in most EU countries over the last decade, primarily in connection with tax increase trends. This had a clear ***contribution on the decline of smoking prevalence*** registered in all the EU region. However, such trend has slowed-down and even reversed in some Member States over the past three years, since the price level trend hardly matched the income growth. Taxation has proved to be a main driver for the reduction of smoking prevalence, although the ***majority of the reduction seems associated to non-economic factors***, including the so-called 'de-normalisation' of smoking and the downslope of the tobacco epidemics in various EU countries. Overall, the EU minimum rates have mainly supported public health-related impact in only a minority of Member States, localised in Eastern Europe and the Balkans. The impact of taxation on dissuading youth from smoking in some MS has been lower than expected due *inter alia* to the substitution of cigarettes with less expensive products like fine-cut tobacco or, in some MS, water-pipe tobacco. There is still ***limited robust evidence on the substitution of cigarettes with e-cigarettes***, but survey data suggests that a slight share of the smoking prevalence decline registered over the past few years could be attributed to consumers' switching to these products.

- **EU ADDED VALUE**

Overarching questions: *What is the additional value of the minimum rates and structures of Directive 2011/64/EU, compared to what could have been expected from Member States acting on national level? Is EU intervention in this area still justified?*

The revised EU minima have raised cigarettes and FCT price levels in some Member States more than what would have happened in the absence of the Directive. Such additionality was greater for the fixed minimum amount requirement than for the minimum incidence requirement. However, such effects appear of fairly limited magnitude and regard only a few EU countries. By consequence, it can be affirmed that the ***Directive has contributed to reducing the consumption of tobacco products*** and smoking prevalence in the EU, although ***the extent of such contribution is limited*** (some 0.25 million fewer smokers in the 2011-17 period). Coherently, most public health authorities of the Member States are not satisfied with the impact of the Directive on tobacco control targets and call for bolder fiscal measures. The position of tax authorities is mixed: on the one hand there is a general recognition of the added-value of the EU tobacco excise legislation and the need to maintain it, on the other hand on specific issues, like convergence of price levels and cross-border shopping, the majority of Member States have a critical view.

- **EFFICIENCY**

Overarching question: *To what extent are the current rates and their structure cost effective in achieving the desired results? Would it be possible to achieve the same results (benefits) at less costs? Is there potential to reduce inefficiencies or simply the rates and structures of excise duty applied to manufactured tobacco without undermining the intended objectives?*

The nature and the scope of the measures introduced by Directive has limited impact in terms of regulatory burdens for both public authorities and economic operators. Overall, such ***burden is considered acceptable and has not changed overtime***. There is room to further improve the current situation addressing the legal uncertainties (and the related transaction costs) stemming from the subjective elements of the 'smoking tobacco' definition and the incongruent definitions of cigarillos laid down in the excise and customs classifications. The only area where the current ***tax categorisation appears inefficient regards the treatment of 'heated tobacco products'***.

Comparing direct charges (i.e. the tax revenues) with smoking prevalence trends, it emerges that the revision of EU minima introduced by the Directive has led to a slight improvement of the cost-efficiency of fiscal policy with respect to potential reduction of social costs of smoking. In other words, from a public health perspective, ***the EU provisions have been efficient in reducing the cost of decreasing smoking prevalence,*** enhancing the benefits in terms of lives saved and reduced healthcare and productivity costs. The marginal effect of the Directive compared to a scenario where the Directive was not in place is however small.

5.3 Problem analysis

- **REVIEW AND STRUCTURING OF POLICY PROBLEMS**

The results of the evaluation show that the achievement of certain objectives of the Directive has been - and still is - constrained or jeopardised by a variety of issues, of different kinds:

- suboptimal performance of policy tools against the expectations – i.e. measures that turned out too 'light' or ineffective and/or causing unintended side effects, as in the case of EU minima levels and the 'mixed structure' requirement;
- legal uncertainties with certain provisions – such as the disparities of interpretation of the MED mechanism;
- lack of internal coherence in the underlying intervention logic – i.e. stated objectives that could not be realistically achieved through the measures laid down in the Directive, as in the case of the 'convergence' of tax levels between countries that EU minima should have produced;
- issues that emerged in recent years and after the Directive entered into force – as it is the case with the disparity of MS approaches towards heated tobacco and e-cigarettes.

For a proper structuring of the problem analysis, the policy problems should be formulated in relation to the objectives of the Directive that they potentially affect. To this end, it is useful to briefly recap such objectives. The two overarching objectives of the Directive are:

1. to ensure the proper functioning of the internal market and, at the same time
2. to ensure a high level of health protection.

Evidently, the achievement of these objectives and especially of the public health objective depends to various extent on other policies, first and foremost the Tobacco Product Directive 2014/40, as well as other sectoral legislation. So, a more precise assessment of the policy problems directly affecting the Directive requires making reference to its 'specific' objectives, which in this Study have been reconstructed as follows[315]:

[315] Based on Authors' reformulation and structuring of the policy objectives that can be inferred from Directive's Recitals.

1. Support EU internal market integration (i.e. avoid partitioning of geographical markets) and removal of obstacles and barriers to it.
2. Avoid tax-induced competition distortions, both cross-country (between low- and high-taxing countries) and cross-product (between low- and high-taxed products).
3. Ensure freely-formed prices for all groups of manufactured tobacco in all geographical markets.
4. Pre-empt fraud and smuggling (tax avoidance, circumvention and 'abuse' of tax categories).
5. Deter consumption by reducing the affordability of tobacco products and by avoiding that such measure can be circumvented by switching from cigarettes to other less-taxed (hence less expensive) products.
6. Ensure a proper functioning of the excise duty system.[316]

Table 5.1 below presents a list of ***11 policy problems connected to the Directive's specific objectives***, as well as a short description of the type and origin of the problem, which are fundamental elements for the identification of appropriate solutions. It is worth highlighting that there is no univocal relation between the policy problems identified and the underlying causes or the nature of the adverse effects produced. So, a single factor such as large tax differentials between cigarettes and FCT, may cause policy problems of different nature - e.g. distortion of competition and undermining of tobacco control measures; similarly, various factors, such as illicit trade, cross-border shopping, and tax-induced substitution may concur to a single policy problem, i.e. tax revenue losses. In structuring the problem analysis, we have considered these many-to-many causal relations and paid attention to define policy problems in analytically homogenous terms, which means that each problem listed in Table 5.1 refers to only one specific objective of the Directive.

For completeness purposes, the list includes also policy problems that have been already identified and assessed under the previous EA 2018 study - marked with (*) - although for some of them no reiteration of the impact analysis has proved necessary. The list covers also novel products, although in the case of e-cigarettes this does not imply a pre-emptive judgment on whether these products should fall or not in the scope of the Directive.

Finally, it is important to remark that at this stage the short descriptions of problems provided should be considered as working hypotheses, which could be confirmed, discarded or modified, in accordance with the results of the impact analysis carried out in Volume 2 of the Study.

Table 5.1 – Outline of policy problems concerning Directive 2011/64

Specific objectives of the Directive	Policy problems	Description
EU market integration	1. Disparities in the tax treatment of novel products across MS	• Some MS consider HTP a non-harmonised tobacco product, while others a harmonised one for the purpose of excise legislation. This creates issues with the movement of HTP across MS border (under EMCS or not), hence a malfunctioning of the internal market. **(*)** • Some MS have introduced a non-harmonised tax on e-cigarettes while others have not. Each taxing country has created its own tax regimes and implementing measures resulting in a significant fragmentation of rules across the EU. This represents an additional burden for some EU economic operators who wish to operate across the borders. Moreover, the disparity of approach put operators in taxing-MS at a

[316] Actually, Directive 2011/64 does not mention among its objectives the proper functioning of the EU excise system, which is the subject of Directive 2008/118, but it can be assumed as implicit that the rules and provisions of Directive 2011/64 should also ensure an effective and efficient administration of excise duty and collection of tax receipts.

Specific objectives of the Directive	Policy problems	Description
		disadvantage against their competitors in other MS, given the difficulty to control cross-border online sales. **(*)**
Avoid tax-induced competition distortions	2. Sizeable cross-border flows fuelled by tax differentials between MS	• Convergence in tax levels across EU countries did not occur in the 2011-17 period. The cross-border flows of legal (tax compliant) products enabled by large tax (hence price) differentials have increased. While cross-border shopping for own consumption is fully legitimate, it is actually difficult to control the actual purpose and destination of products and high-magnitude flows may create various competition and tobacco control concerns. The issue is particularly acute for cigarettes – less so for other products. • Although e-cigarettes are not currently in the scope of the Directive, the disparities in tax treatment causes significant flows of products from non-taxing countries to taxing ones, circumventing MS legislation. Some cases of cross-border shopping of HTP are also reported.
	3. Tax-induced substitution between products	• The Directive's measures did not entirely support the stated objective of reducing the tax level 'gap' between cigarettes and fine cut tobacco, since the difference in the monetary EU minimum rates for the two products have not reduced in the 2011-2017 period. Actually, many MS have autonomously increased the taxation of FCT more than cigarettes' and as a result tax-induced substitution has slowed down, but the contribution of the Directive to this aim remains insufficient. • Furthermore, a clear and agreed equivalence between cigarettes and FCT is missing, so the concept of 'tax gap' between products and the evaluability of EU and MS measures in this respect are volatile. • The EU minima for tobacco products other than cigarettes have not changed for many years and, although no major market functioning or public health issue is registered in this area, they have unquestionably grown irrelevant and unfit for purpose.
Ensure freely-formed price	4. Effects of the MED on price and competition	• 'Uncapped' recourse to the MED have in few cases led to situations where the majority of the market resulted taxed according to this mechanism instead of the 'mixed structure'. These have raised complaints among operators for allegedly distortion of competition. This issue is connected to the legal uncertainty that exist with the current formulation of the MED provision in the Directive, and the ensuing disparities of interpretation. The need for a clarification is expressed by the vast majority of MS tax authorities. • A 'flat' MED is not always efficient to achieve certain policy objectives concerning the bottom price segments of the market, as compared, for instance to 'dynamic' MED mechanisms adopted in a few MS, such as the so-called 'minimum total tax', which is a MED inclusive of VAT. The absence of an explicit approval of such mechanisms may hinder their uptake and deprive MS authorities of an additional tool that may well combine an effective tax floor with a reduced impact on non-target products and competition in general.
Pre-empt fraud and smuggling	5. Demand for illegal products	• The impact of tax increases on prices can unintendedly strengthen the incentives to produce and trade illegal products. MS bordering with Eastern non-EU hubs of illicit trade are more affected, but a rise of illegal manufacturing in some Western EU countries is also reported. Illicit trade can be enabled by high price levels but its magnitude depends largely on other factors, such as monitoring and enforcement capacity. • In absolute terms, the illicit trade of tobacco products other than cigarettes is much smaller, but on the rise, especially as regards 'bulk' tobacco and water-pipe tobacco.
	6. Reselling of products duty-	• See problem #2 above: significant price disparities between MS may not only be exploited for legitimate cross-border

Specific objectives of the Directive	Policy problems	Description
	paid in another country	shopping for own consumption but also for 'bootlegging' i.e. for reselling purposes (also known as 'ant-smuggling').
Deter consumption	7. Insufficient impact of EU provisions on affordability	• The tax levels of all tobacco products are above EU minima (often significantly) in all MS, so the current provisions are almost irrelevant as far as affordability of tobacco is concerned. This is especially the case with minimum monetary amounts, while minimum incidence requirements maintain a certain effectiveness. • The potential impact of EU minima on the overall affordability of tobacco in the EU should not be overemphasised, though, since in low-taxing countries prices are generally higher than the EU average in purchasing power terms. • The mixed structure requirement (and related thresholds for the specific component) is ineffective and possibly obsolete for tobacco control purposes, if compared to the EU minima provisions.
	8. Availability of less expensive alternatives	• See problem #3 above: the EU provisions were not fully consistent with the objectives of reducing 'tax gap' between cigarettes and FCT, and while in some MS such gap has indeed narrowed down, in others FCT remains much more affordable than cigarettes.
Proper functioning of the excise system	9. Burden due to legal and classification uncertainties	• Some uncertainties in the interpretation of the 'smoking tobacco' definition had been highlighted in the previous EA 2018 study. These have recently exacerbated, as a few countries have set more stringent classification criteria, in connection with a CJEU ruling issued in April 2017 (C-638/15), which affected the cross-border movement of semi-finished tobacco, and caused administrative burden for national administrations and tobacco first processors alike. **(*)** • The definition of cigarillos differs between excise and customs classifications, which may create legal uncertainties and related burden for tax and customs administrations. A legal case in this area is currently before the CJEU (C-638/17). **(*)** • As seen above (problem #4) there remains uncertainties on how to consider MED in relation to the required compliance with the mixed structure requirements. **(*)**
	10. Ineffective / obsolete measures	• The mixed structure requirement for cigarettes adds some complexity to MS fiscal policy that seems poorly justified by its limited contribution to achieving the objectives of the excise legislation.
	11. Lack of stability / predictability in excise duty collection	• See problem #5: illicit trade can evidently cause tax revenue losses. • See problem #2 and #6: also cross-border flows of legal cigarettes are affecting tax receipts (both for own consumption and illicit reselling). The effects are distributional: a loss is registered in MS with a net 'inflow', and a gain in MS with a net 'outflow'. The aggregate EU level impact is in any case negative since cigarettes mostly flow from low-taxing to high-taxing countries. • See problem #3: the substitution of high-taxed products with low-taxed ones, as in the cases of down-trade from cigarettes to FCT, may affect stability and predictability of tax revenues. • Where no separate ad hoc category has been established, MS are not able to modulate taxation for HTP as they deem appropriate without unintendedly affecting other smoking tobacco products, with the ensuing risk of revenue loss. **(*)** • The ad hoc tax regimes set up in certain MS for e-cigarettes can be easily circumvented in the absence of a common EU framework, with ensuing revenue loss. **(*)**

Note: *(*) items that have been already analysed in the EA 2018 study.*

End of Volume 1

APPENDICES

A - Abbreviations and Acronyms

bn	Billion
CN	Combined Nomenclature
COP	Conference of the Parties
DG COMP	Directorate-General for Competition
DG SANTE	Directorate General for Health & Food Safety
DG TAXUD	Directorate General for Taxation and Customs Union
EB	Eurobarometer
EC	European Commission
ECHI	European Core Health Indicators
EDT	Excise Duty Table(s)
EDY	Excise Duty Yield
EHIS	European Health Interview Survey
EMCS	Excise Movement and Control System
EU	European Union
FCT	Fine Cut Tobacco
FCTC	Framework Convention on Tobacco Control
FESS	Functional Excise System Specification
HICP	Harmonised Index of Consumer Price
HTP	Heated Tobacco Products
IARC	International Agency for Research on Cancer
ITEG	Indirect Tax Expert Group
MED	Minimum Excise Duty
MPPC	Most Popular Price Category
MTT	Minimum Total Tax
MS	Member State(s)
NDL	Non-Domestic Legal
NGO	Non-Governmental Organisation
OLAF	European Anti-fraud Office
OPC	Open Public Consultation
OST	Other Smoking Tobacco
RIP	Relative Income Price
RfC	Releases for Consumption
RYO	Roll Your Own
SME	Small and Medium-sized Enterprise
ToR	Terms of Reference
TPD2	Tobacco Products Directive (2014/40)
UTC	Unrecorded Tobacco Consumption
VAT	Value Added Tax
WAP	Weighted Average Retail Selling Price
WCO	World Customs Organisation
WHO	World Health Organisation

	Member States
AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

B - Glossary of key terms

Accessibility (of tobacco products)	The relation between the lowest level of price of tobacco products and the per capita GDP (or other measure of the income level) in any given country.
Ad valorem excise duty	Duties levied on the maximum retail price of products and expressed as a percentage of it.
Affordability (of tobacco products)	The relation between the average level of price of tobacco products and the per capita GDP (or other measure of the income level) in any given country.
Contraband & counterfeit (C&C)	The share of unrecorded tobacco consumption that consists of non-tax-paid products illegally manufactured and/or illegally traded across the borders.
Cross-price elasticity of the demand	Conceptually similar to the price elasticity of the demand, it measures the responsiveness in the quantity demanded of one good when the price of another good changes. If such quantity is positive goods are deemed substitutes, if negative, goods are deemed complementary.
Electronic cigarette (e-cigarette)	In line with Directive 2014/40, it means a product that can be used for consumption of nicotine-containing vapour via a mouth piece, or any component of that product, including a cartridge, a tank and the device without cartridge or tank. Electronic cigarettes can be disposable or refillable by means of a refill container and a tank, or rechargeable with single-use cartridges.
Escape clause	Member States that levy an excise duty that exceed a certain monetary amount may not comply with the 'relative minimum rate' requirement.
Excise duty yield at WAP level (EDY)	The sum of the specific duty and the ad valorem duty levied per quantity of products (units or weight), measured at the level of the 'weighted average price' (it may or may not include a 'minimum excise duty', depending on the context).
Fixed minimum amount	One of the two of EU minima requirements, consisting of a minimum mandatory monetary amount of excise duty that Member States should levy on a given tobacco product.
Heated tobacco products	Also known as 'heat-not-burn', it includes recently introduced products where processed tobacco is heated by means of an electronic device to produce an aerosol.
Highest market price observed (P_{max})	Indicator elaborated in the Study, corresponding to the highest price actually registered - on the basis of Euromonitor International store-checks - in a given country/ year for a certain category of product.
Illicit whites (or 'cheap whites')	Brands manufactured legitimately in non-EU countries but smuggled and sold illegally in the EU without paying duties.
Lowest market price observed (P_{min})	Indicator elaborated in the Study, corresponding to the lowest price actually registered - on the basis of Euromonitor International store-checks - in a given country/ year for a certain category of product
Lowest viable price (P_0)	Indicator elaborated in the Study, corresponding to the level where the price is equal to the total tax burden (including MED, if relevant), i.e. the pre-tax price margin is equal to zero.
MED 'kick-in' price (P_{MED})	Indicator elaborated in the Study, corresponding to the price level below which the excise duty levied is smaller than the MED level, so the MED mechanism applies.
Minimum excise duty (MED)	Minimum amount of excise duty (per quantity of product) that MS can levy on certain tobacco products when the sum of specific and ad-valorem duties falls below an established threshold.

Minimum total tax (MTT)	Mechanism similar to the 'minimum excise duty' where the established threshold includes also the value-added tax. Since the value-added tax is proportional to price, the minimum total tax is *de facto* regressive: i.e. the lower the price, the higher the MTT component.
Mixed structure (of excise duty)	Excise duty structure including both a specific and an ad valorem component, in a proportion that respect upper and lower thresholds established in the EU legislation.
Most popular price category (MPPC)	The price category of cigarettes most in demand in a given country. Until 2010, it was the benchmark for calculating the EU minima on cigarettes. It was later replaced by the weighted average price (WAP).
Non-domestic legal consumption (NDL)	The share of unrecorded tobacco consumption that is taxed in a Member States that is different from the country of final consumption. In this Study, the definition of NDL includes both products moved for private consumption and those moved for (illicit) reselling.
Novel products	In this Study it designates heated tobacco products and electronic cigarettes, as well as hybrid systems. It has not to be confounded with the definition of 'novel tobacco products' laid down in Directive 2014/40.
Pass-through elasticity	It measures the extent of the price change (in %) following a change in the tax levied (in %) on given tobacco products.
Price elasticity of the demand (PED)	It is a measure of the change in the quantity demanded or purchased of a product in relation to its price change. A PED of e.g. -0.5 means that if price changes by 10% the quantity demanded reduces by 5%.
Refill container	In line with Directive 2014/40, it means a receptacle that contains a nicotine-containing liquid, which can be used to refill an electronic cigarette.
Relative minimum rate	One of the two types of EU minima requirement, consisting of a minimum mandatory incidence of excise duty on the price of given tobacco products (typically, but not necessarily, with reference to the weighted average price).
Relative income price (RIP)	The share of GDP per capita necessary to buy 100 packs of cigarettes.
Release for consumption (RfC)	The condition where excise goods are not under duty suspension arrangements and are therefore subject to the charging of the excise duty.
Retail price bandwidth (compression)	Interval between the lowest and the highest market price observed, expressed as the ratio between P_{max} and P_{min}. The smaller the interval, the higher the market price 'compression'.
Smoking prevalence	The share of any given population that declares being a current smoker of any tobacco product.
Specific excise duty	Duties levied on the quantity of product and expressed as monetary sum per unit (i.e. per 1000 units, per Kg and the like).
Total tax burden	The sum of the ad valorem and specific excise duty plus the value-added tax.
Unrecorded tobacco consumption (UTC)	The share of total tobacco consumption that is not taxed in the country of consumption because of either foreign or illegal origin.
Weighted average price (WAP)	The weighted average retail selling price is calculated as the ratio between the monetary value of all products released for consumption, based on the retail selling price, divided by the total quantity released for consumption. The WAP is the reference to estimate the average excise duty yield (EDY) and the compliance with certain legal requirements.

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