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Tobacco use, sales and prices: a European perspective

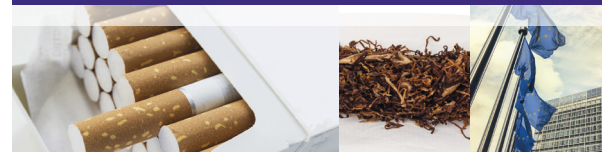
It seems particularly interesting to compare levels of tobacco use on a European scale and in the other main Western countries (the United States, Canada, New Zealand and Australia, etc.). This is also a complex undertaking, particularly when comparing these levels with prices in various countries. No international surveys are conducted with a view to determining the prevalence of tobacco smoking in the population of each of these countries over the same year and, in particular, there are no studies on current prices. Hence, comparison is only possible based on limited national or supranational surveys, not necessarily taking place over the same period or using the same methodology.

Nevertheless, several sources may be mobilised to offer a glimpse into tobacco use in Western countries. These primarily involve prevalence surveys. The Special Eurobarometer survey on tobacco (TNS Opinion & Social, 2017) for European Union (EU) countries, despite its limitations¹, and data from the Organisation for Economic Cooperation and Development (OECD), taken from national surveys, for other countries, offer some indications. The ESPAD (European School Project on Alcohol and other Drugs) survey, conducted in approximately forty European countries since 1999 alongside 16-year-old students, sheds light on tobacco use among teenagers.

In addition to these figures on prevalence, the European Commission publishes annual data on volumes of cigarettes and fine-cut tobacco² (i.e. roll-your-own tobacco) sold within each EU country. Figures provided by the Commission also provide an overview of the average tobacco prices in each EU Member State³. It is still difficult to gather these two types of information for other Western countries; however, a report issued by the World Health Organization (WHO) in 2015 (WHO, 2015) offers some useful points of comparison on the prices of cigarettes, notably in English-speaking countries.

The objective of this issue of *Tendances* is thus to bring these various data together, notably in the form of maps, to offer a comparison between the various countries and thus put the situation in France into perspective.

This issue of Tendances analyses the prevalence of use and price levels on a European scale.



■ One of the highest levels of use in Europe

In 2017, approximately a quarter of Europeans aged 15 years and over claimed to smoke tobacco daily, with wide differences in prevalence, between Sweden, where only 5% of the population claim to smoke tobacco (preference is given to oral tobacco, known as "snus", banned in the rest of the EU since 1992, which partly explains the low figures), and Bulgaria, where more than a third of inhabitants are daily smokers (Map 1). According to the Eurobarometer survey on tobacco, France, with 33% of daily smokers, corresponds to a very high level of tobacco smoking compared with the European average (24%), particularly with neighbouring countries. Taking into account a confidence interval of slightly under three points, at least 30% of French people aged 15 and over are said to smoke daily. This proportion is higher than the findings of the 2017 Health Barometer survey (27%, versus 29% in 2016 – a significant difference), which concerns the 18–75 year age group (Pasquereau *et al.*, 2018). This is, moreover, a constant feature of the Eurobarometer

1. The Eurobarometer sample in each country borders on 1,000 individuals, which gives rise to a margin of uncertainty on the results, in the region of a few percentage points. Furthermore, no indication is provided on the survey participation rate; an interviewee selection bias cannot be ruled out.

2. According to Article 275E of the French General Tax Code, fine-cut tobacco is considered as «tobacco which has been cut or divided in another way [...] which is liable to be smoked without further industrial processing», i.e. mainly destined for roll-your-own cigarettes. In France, roll-your-own tobacco accounts for approximately 96% of fine-cut tobacco sold in the tobacco retailer network (the remainder being used for pipe smoking). This more commonly used name will therefore be used in this report.

3. These data are available on the following website: https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-tobacco_en

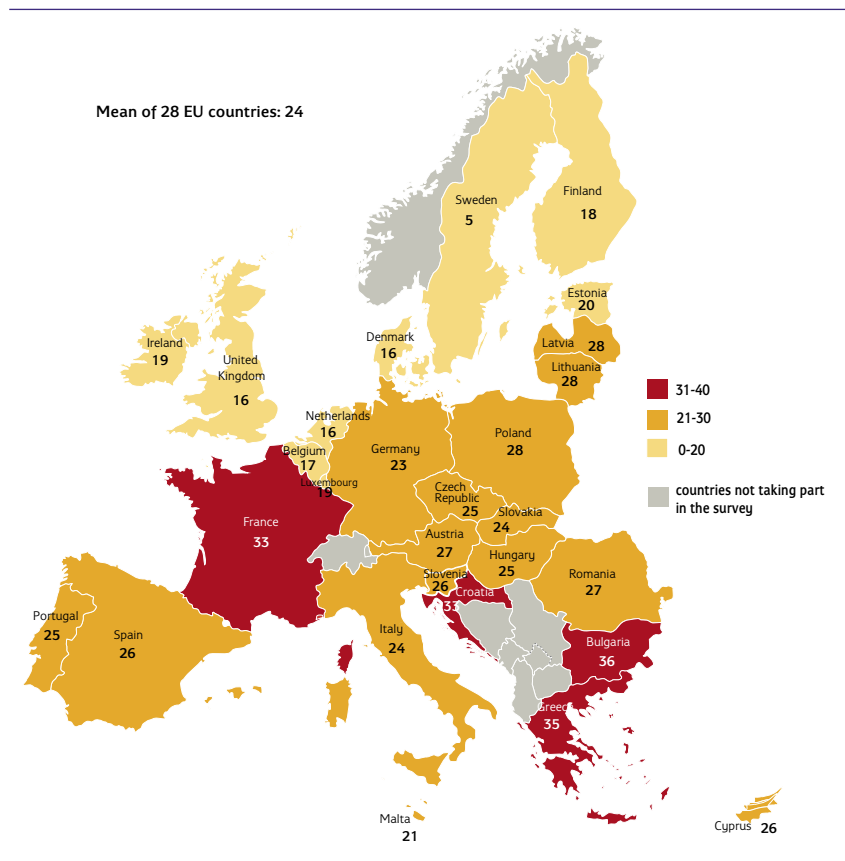
surveys on tobacco, which always appear to overestimate prevalence in France. This difference does not, however, call into question the higher levels of use observed compared with the majority of other European countries, especially neighbouring countries. Nonetheless, if the recent downward trends observed in France continue, this could raise doubts about France's ranking in this classification.

This comparison may be extended to other Western countries, particularly English-speaking countries, based on figures compiled by the OECD⁴. Hence, in 2015, 11% of inhabitants of the United States aged 15 and over claimed to smoke daily, which was also the case in Iceland, compared to 15% in New Zealand. According to earlier data, 13% of Australians and 15% of Canadians used tobacco daily in 2013. These figures on the prevalence of tobacco consumption are markedly lower than those reported in France via the Health Barometer survey. Furthermore, in terms of progression, tobacco smoking has remained relatively stable or very slightly lower in France over the 2000–2015 period, despite substantial reductions in other countries, ranging from a quarter to nearly 50% in Iceland (-49% between 2000 and 2013), in Australia (-35%), in the United States and Canada (-28% and -34%), in New Zealand (-38%), Ireland and the United Kingdom (-42% and -26%). The marked decline in tobacco smoking observed between 2016 and 2017 according to the Health Barometer survey is perhaps a sign that a similar downward dynamic has begun in France, although this can only be confirmed in the next surveys.

Although France also stands out due to the high levels of use among young people, the differences appear slightly less pronounced among 16-year-olds, with 26% reporting last-month use in the ESPAD survey, whereas the average for participating countries reached 21%. The proportion of daily smokers over the same period reached 16% (Map 2), versus 12% for all participating countries (The ESPAD Group, 2016).

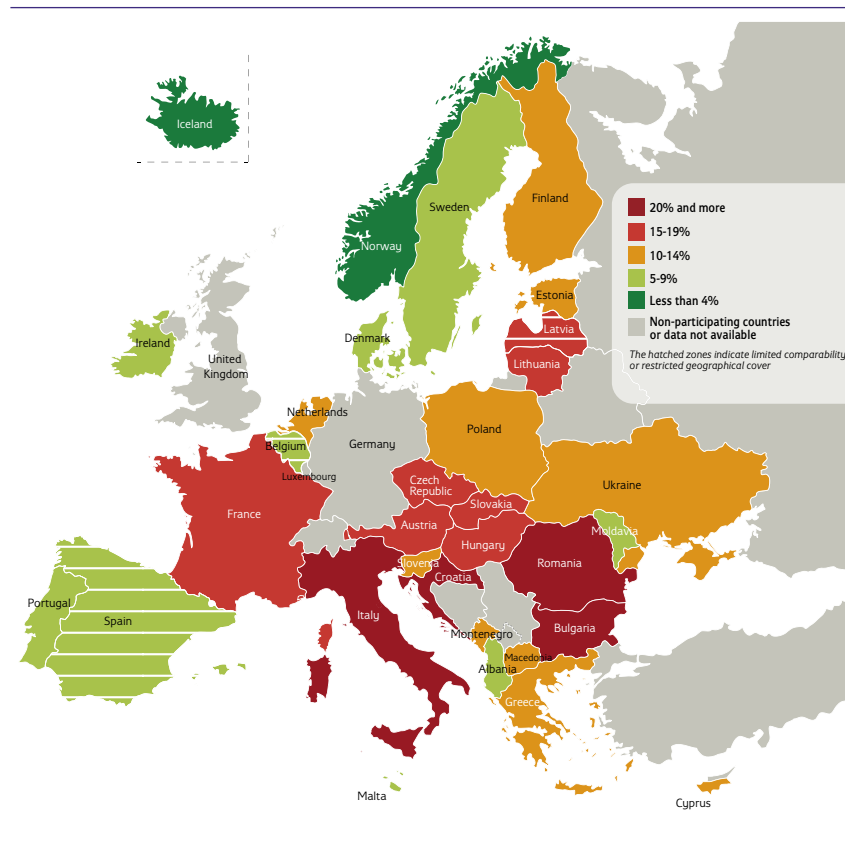
While certain similarities exist between the tobacco smoking situation among adults and 16-year-old students, the two maps do not completely match. Hence, the Iberian peninsula tends to show higher tobacco use among adults whereas smoking among young people seems to be considerably below the

Map 1. Prevalence of daily tobacco use among people aged 15 and over, in European Union countries, in 2017 (%)



Source: Special Eurobarometer 458 on tobacco (European Commission)

Map 2. Prevalence of daily tobacco use among 16-year-olds, in European countries, in 2015 (%)



Source: 2015 ESPAD survey

4. Available on the following website: <https://data.oecd.org/healthrisk/daily-smokers.htm>

European average; conversely, very high levels of use are observed among Italian young people, but this is not the case for Italian adults.

■ Tobacco sales are an inadequate reflection of use

Tobacco use may also be measured by the quantities released for consumption, in other words, the quantities marketed or sales, in each State. The quantities released for consumption solely reflect sales in the official network (tobacconists and authorised retailers in France), whether purchases are made by smokers from these countries or by foreign visitors. To compare countries with different population sizes, the volume released for consumption is calculated with reference to the total number of inhabitants in each State so as to yield a standard indicator, expressed as the number of packs of 20 cigarettes (Map 3a) and as grams of roll-your-own tobacco (Map 3b) per inhabitant per year.

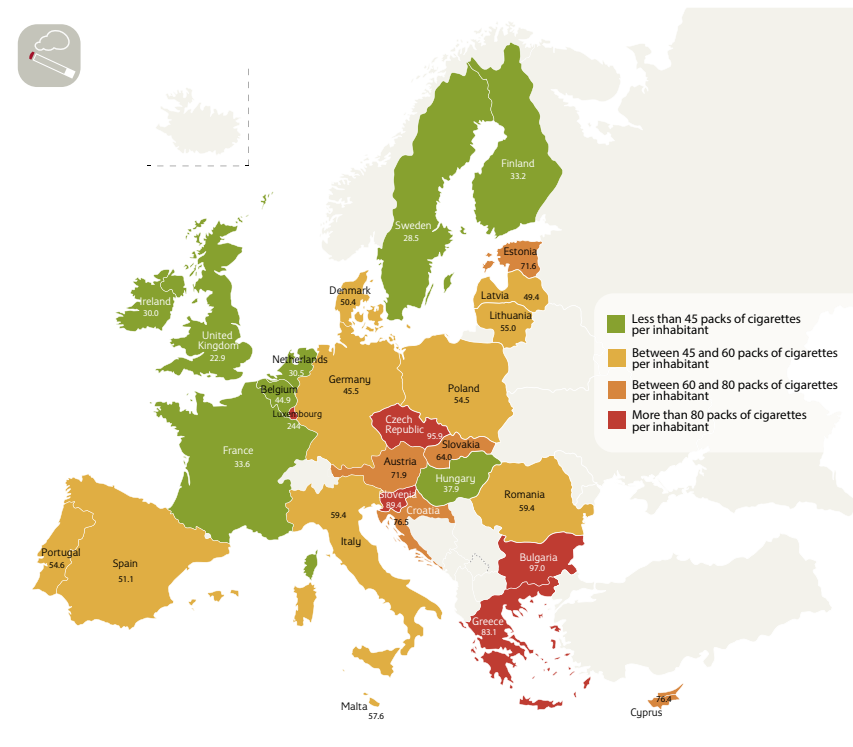
Manufactured cigarette sales per inhabitant, which represent the main bulk of the tobacco market in most European countries⁵, are a fairly good reflection of the differences in the prevalence of use observed in the 2017 Eurobarometer survey, other than a few exceptions including France. Hence, Northern European countries and the British Isles show the lowest volumes released for consumption, in keeping with the limited levels of use observed in their populations. In contrast, sales recorded in Bulgaria and Greece are very high, in keeping with the high prevalence of use reported in the Eurobarometer survey.

The geographical distribution of roll-your-own tobacco sales is more difficult to interpret compared with the levels of use observed in the 2017 Eurobarometer survey. On average, in the European Union, roll-your-own tobacco sales per inhabitant amount to 170 grams per year, a quantity approximately five times lower than for cigarettes. This level is higher in the Benelux countries and in Germany, along with Hungary and, to a lesser extent, France, which all have the lowest levels of cigarette sales (except for Luxembourg): due to the effect of cigarette prices (increases), some smokers have more than likely reverted to the cheaper roll-your-own tobacco⁶.

5. In 2016, roll-your-own tobacco represented a large proportion of the quantities of tobacco marketed per inhabitant in the Benelux countries (Belgium: 47%, the Netherlands: 40%, and Luxembourg: 57%) and in Hungary (46%).

6. In contrast to cigarettes, the weighted average price of roll-your-own tobacco is only stated by some EU Member States. However, it should be noted, for example, that as of 1 January 2018, 20 grams of cigarette tobacco cost €6.81, versus €5.66 for roll-your-own tobacco in France, compared with €5.47 versus €2.90 in Germany, with a practically identical difference in price in Belgium.

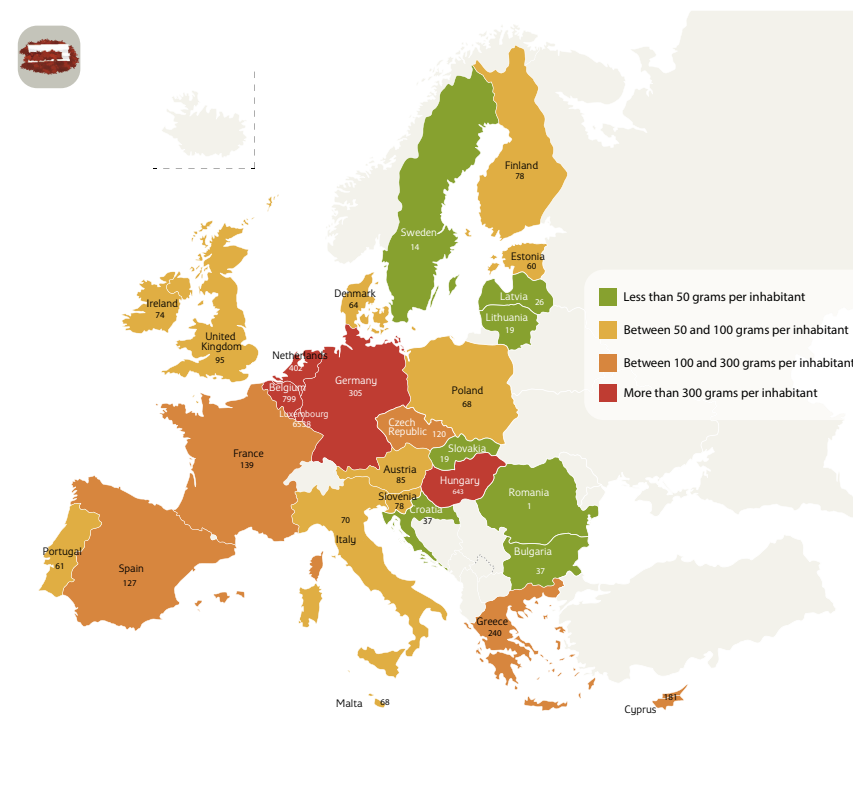
Map 3 a. Quantities of cigarettes released for consumption per inhabitant in 2016, in European Union countries (packs of 20 cigarettes)



Source: European Commission

N.B.: the figure indicated for Sweden is from 2015.

Map 3 b. Quantities of roll-your-own tobacco released for consumption per inhabitant in 2016, in European Union countries (grams)



Source: European Commission

Fine-cut tobacco: tobacco not packaged for manufactured cigarettes but for roll-your-own cigarettes or pipes.

In France, 96% of fine-cut tobacco is, in fact, roll-your-own tobacco.

N.B.: the figure indicated for Sweden is from 2015.

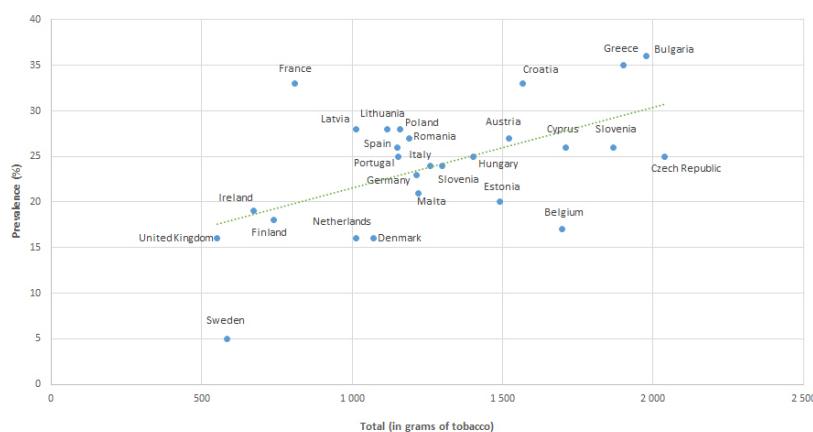
Graph 1 provides an overview of the countries according to these two criteria, to shed light on the link between sales and prevalence of daily use. As a general rule, a positive correlation (green dotted line) is observed between the prevalence of use and tobacco sales (cigarette and roll-your-own together), although some countries deviate from this rule. Sweden is an artefact as the data only concern smoking tobacco and, for cultural reasons, the country tends to use oral tobacco ("snus"), banned in the rest of the EU. Furthermore, although not included in this graph (as it would "obliterate" all of the other countries), Luxembourg is also in a highly atypical position. In this small State bordering Germany, Belgium, and France, the prevalence of smoking in the population is low (19% of inhabitants of Luxembourg aged 15 and over are daily smokers, according to the 2017 Eurobarometer survey); however, tobacco sales per inhabitant are extremely high (the highest in the EU), due to the effect of tax shopping (purchases made by foreign visitors due to very low prices). To a much lesser extent, this is also the case in Belgium and Czech Republic, or the Netherlands and Denmark, countries in which tobacco sales seem higher than expected for the levels of tobacco use. The reverse situation is observed in France, with sales lower than the European average (811 grams of tobacco per inhabitant, or 50% lower than the European average excluding Luxembourg), despite more than a quarter of its inhabitants smoking daily. This is explained by the large number of purchases outside the tobacconist network, particularly cross-border purchases, as smuggling appears to be relatively limited in France (Lalam *et al.*, 2012). Hence, according to the 2016 ATLAS survey, one in five smokers always, nearly always or often purchase their tobacco abroad (Lermennier-Jeannot and Palle, 2017). Croatia, Greece and Bulgaria appear to be in the same situation as France, with sales lower than expected for the level of tobacco use, possibly suggesting unofficial purchases.

■ Highly variable prices indicating disparities in living standards

Each year, EU countries notify the European Commission of the weighted average prices (weighted by sales volumes) for cigarettes and roll-your-own tobacco. These figures do not correspond to the price of a specific cigarette brand in tobacco retail shops or other stores, but express the current tobacco price levels in each country.

Table 1 (page 5) shows the ranking of European States according to regular weighted average price (first column)

Graph 1. Breakdown of the prevalence of daily smoking and tobacco sales (cigarettes and roll-your-own tobacco) in European Union countries



Source: European Commission

Sweden*: 2015 data

Note: Luxembourg is not shown, for clarity reasons; sales exceed 10,000 grams per inhabitant and would «obliterate» the scatter plots for the other countries.

and according to price adjusted to the living standards of inhabitants (second column). The classification according to regular price shows a high disparity between countries but also a dramatic cut-off between Eastern States (former Soviet Union and Greece), where prices are below 4 euros, and prices in Western EU countries. Furthermore, a difference is observed within Western European countries, between the North (Scandinavian countries, British Isles, and France in particular), where prices are over 6 euros, and the South. Only a few countries, such as Austria and Luxembourg, are an exception to this rule.

However, this classification according to regular tobacco prices does not take into account the differences in living standards among EU populations. To do so, the regular weighted average prices were corrected by the gross domestic product expressed as purchasing power parity (GDP-PPP)⁷. The price adjusted for each country is equal to the product of the regular price multiplied by the correction coefficient equal to the ratio between the average GDP-PPP in the EU and the GDP-PPP of the country⁸. The dispersion in the corrected prices thus appears lower. The ranking of the various countries is thus modified somewhat, but does not eliminate the East-West divide: the prices tend to remain around 4 euros for Eastern European States, and in the region of 5–6 euros in the West. Furthermore, examination of the adjusted prices blatantly shows that tobacco prices are particularly low in certain countries, such as Luxembourg but also Austria and Germany. However, prices remain high in the United Kingdom and France af-

ter taking living standards into account, whereas they are practically halved in Ireland. Lastly, Portugal has become the third most costly European country for tobacco, given the living standards of its inhabitants.

Comparison of the prevalence of tobacco smoking and regular price initially seems to indicate the existence of a decreasing relationship conventionally observed between prices and quantities. In Eastern EU countries, with lower living standards, prices are lower and prevalence is higher. However, once the prices adjusted to living standards are substituted for the regular price, this relationship disappears. For a given adjusted price, the proportion of smokers can vary from single to double figures, as is the case for Belgium and Croatia (17% and 33% of daily smokers, respectively, according to the 2017 Eurobarometer survey on tobacco). The differences in the prevalence of tobacco smoking between countries still characterised by highly variable living standards, different cultures and histories are only marginally explained by the differences in prices.

It is highly likely that other factors also come into play in explaining these differences: the importance and history of anti-smoking policies (Eastern European

7. The GDP-PPP of European countries in 2017 in USD are available online via World Bank (<http://www.worldbank.org/>).

8. For example, GDP-PPP is USD 43,600 for France and USD 39,200 for the EU, which results in a price correction index of 0.966. The corrected price is therefore equal to €6.81 x 0.966 = €6.58, i.e. approximately one euro higher than in Greece, where the regular price is much lower but the inhabitants have lower incomes.

countries, having more recently joined the EU, do not have as many anti-smoking laws as France or the United Kingdom, or for as long), prevention measures, repression of trafficking, etc.

Obtaining similar data on prices in other Western countries has proved difficult. However, in 2015, WHO published a report on price levels in the rest of the world. In 2014, the lowest price per pack of 20 cigarettes in Australia was AUD 14.65 (i.e. a little under 9 euros); this was equivalent to approximately 10 euros in New Zealand and nearly 8.50 euros in Iceland and Norway. However, prices in the United States and Canada, two federal states, are variable and are not included in the WHO report.

■ Conclusion

In relation to EU countries, particularly those in Western Europe, together with other developed (English-speaking) countries, tobacco use seems particularly high in France, from adolescence onwards. The marked decline in tobacco smoking among adults between 2016 and 2017 does not yet contradict this observation. The price of tobacco in France is nonetheless among the highest in the EU, much more than in neighbouring countries, even when taking the living standards of inhabitants into account. Furthermore, the volume of tobacco sales in the tobacco retailer network does not appear to match the proportion of smokers.

In view of the analysis conducted, a sort of French paradox still therefore seems to persist in terms of tobacco smoking. Despite increasingly restrictive legislation (see box on page 6), complying in practically all respects with the requirements of the Framework Convention on Tobacco Control (FCTC) ratified by the country in 2004, entailing numerous restrictions on use, advertising and access (to minors), together with high prices, up to 2016, France has not managed to sustainably reduce its tobacco use. The apparent contradiction between high prices and the continued high prevalence is partly explained by the lower cost of tobacco in neighbouring countries which encourage cross-border purchases⁹, and also, perhaps, the policy applied to price increases since 2004. It has been shown that, in order to sustainably reduce use, these increases should be sizeable and repeated (Hill and Legoupil, 2018; The World Bank, 1999), whereas France has not always followed this dynamic. Following the high price increases between 2002 and 2004 (+€1.40, i.e. 39%), after which a sharp decline in sales was observed, prices stagnated for a few years until the moderate, gradual increases between 2009 and 2014,

Table 1. Regular and adjusted weighted average price per pack of 20 cigarettes as of 1 January 2018, in European Union countries (EUR)

Regular price		Adjusted price	
Bulgaria	2.55	Luxembourg	1.83
Lithuania	2.99	Austria	3.61
Latvia	3.03	Czech Republic	3.70
Croatia	3.05	Lithuania	3.85
Slovakia	3.13	Slovakia	4.02
Poland	3.19	Slovenia	4.17
Estonia	3.24	Estonia	4.23
Czech Republic	3.31	Denmark	4.38
Romania	3.31	Germany	4.46
Slovenia	3.51	Poland	4.50
Hungary	3.52	Latvia	4.53
Greece	3.75	Netherlands	4.81
Cyprus	4.28	Spain	4.90
Portugal	4.40	Italy	4.94
Spain	4.52	Sweden	4.95
Austria	4.59	Croatia	4.99
Luxembourg	4.60	Belgium	5.11
Italy	4.76	Hungary	5.12
Malta	5.25	Cyprus	5.13
Denmark	5.36	Bulgaria	5.19
Germany	5.47	Romania	5.30
Belgium	5.88	Ireland	5.45
Sweden	6.00	Malta	5.49
Finland	6.12	Greece	5.57
Netherlands	6.16	Finland	5.60
France	6.81	Portugal	5.65
United Kingdom	8.83	France	6.58
Ireland	10.07	United Kingdom	8.32

Source: European Commission (for regular prices) and World Bank (for data enabling adjustment to purchasing power)

Note: The regular prices stated in national currencies were converted into euros by the European Commission based on the exchange rate applicable on 2 October 2017.

which have not had the desired effect. Other reasons may also be suggested to explain the persistent tobacco use among the French: limited application of measures banning sale to minors (Le Nézet *et al.*, 2018) and smoking in public places, partial reimbursement of nicotine replacement therapy over a long period (Chevreul *et al.*, 2013), high tobacco use among women, even during pregnancy (17% daily smokers in the third trimester (Blondel *et al.*, 2017)), still perceived as a symbol of emancipation and hedonism...

The introduction of the 2014–2019 National Smoking Reduction Pro-

gramme (Ministère des Affaires sociales, de la Santé et des Droits des femmes, 2014), with its symbolic measure, plain tobacco packaging, and the price increases provided for in the National Programme for Combating Smoking up to 2020, expected to reach 10 euros per pack of 20 cigarettes¹⁰ could result in a decline in tobacco smoking

9. As France has land borders with seven other States, French smokers can easily (legally) procure tobacco at a lower price abroad, compared with their British or Scandinavian counterparts.

10. Providing these increases are not offset by industry strategies (by reducing margins to « absorb » price rises) or by smokers continuing to have access to cheaper tobacco (purchases outside the tobacco retailer network).

in the long term and put an end to this French peculiarity. The image of tobacco also seems to have changed among the younger generations, having extremely degraded compared with the older generations (Obradovic, 2017), and daily smoking among 17-year-olds markedly decreased in 2017 (59% lifetime users and 25% daily smokers, versus 68% and 32%, respectively, in 2014) (Le Nézet *et al.*, 2018). Among adults, figures taken from the 2017 Health Barometer survey also indicate a significant reduction compared with the levels observed between

2010 and 2016, with “a million smokers less in the space of a year”¹¹. These developments should become established over time, making up for the delay in terms of prevalence compared with other Western countries.

11. Press kit issued by the Ministry of Health and Santé publique France on 28 May 2018 for World No Tobacco Day.

French anti-tobacco measures: key dates from 2010 to 2018

April 2010	Decree of 15 April 2010: Rules for shifting from text-only health messages to visual messages (photographs + text) with the display of the Tobacco Information Service telephone helpline on all packages.
April 2011	Application of visual health messages on cigarette packs; a year after for other tobacco product packaging (roll-your-own tobacco, pipe tobacco, cigars and cigarillos, etc.).
2010-2014	Regular price increases (November 2009 and 2010, October 2011 and 2012, July 2013 and January 2014): the price per 20-cigarette pack of the most popular brand increased from €5.30 in October 2009 to €7 in January 2014, representing a total increase of +32%.
September 2014	Launch of the 2014-2019 National Smoking Reduction Programme (PNRT).
January 2016	Law of 26 January 2016: plain tobacco packaging with new larger health warnings, ban on advertising at sales outlets, on perceptible aromas and certain additives, and on smoking in vehicles in the company of minors, joint approval of tobacco prices by the Ministry of the Budget and the Ministry of Health, etc.
November 2016	Introduction of the reimbursement of nicotine replacement therapy (NRT) amounting now to €150 per year (against €50 previously), per person, after extending the authorised prescriber professions at the beginning of 2016.
1st January 2017	Compulsory sales date for plain tobacco packaging in tobacco retail shops.
February 2017	Increase in roll-your-own tobacco prices (+15% on average).
September 2017	Announcement of the 2018-2020 price rises to reach €10 per 20-cigarette pack.
November 2017	Increase in cigarette and roll-your-own tobacco prices (+30 cents and +10 cents, respectively, per pack of the most popular brand).
March 2018	Increase in cigarette and roll-your-own tobacco prices (+94 cents and +2 euros on average, respectively). Launch of the Prevention plan which provides for the reimbursement of all types of nicotine replacement therapy by the National Health Insurance Fund up to 65%.
28 May 2018	Announcement of the launch of the 2018-2022 National Programme for Combating Smoking.

Note: this is an update of the key dates suggested in *Tendances* no. 92 (Lermenier-Jeannet, 2014).

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