



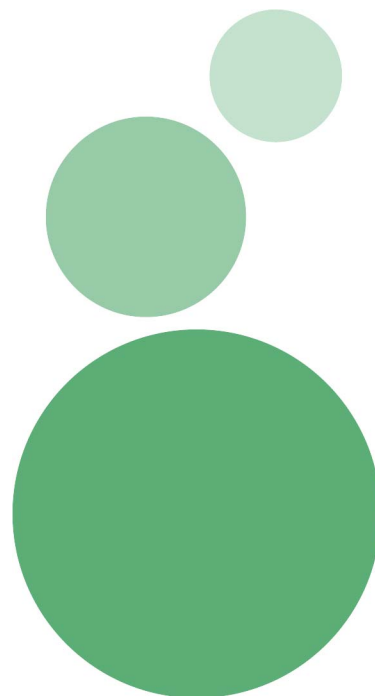
Executive Agency for Health and  
Consumers

Specific Request EAHC/2011/Health/11 for  
under EAHC/2010/Health/01 Lot 2

Economic analysis of the EU market of  
tobacco, nicotine and related products

**Revised Final Report**

20 September 2013



### **Disclaimer**

This report was produced under the Health Programme (2008-13) in the frame of a contract with the Executive Agency for Health and Consumers (EAHC) acting on behalf of the European Commission. The content of this report represents the views of Matrix Insight and is its sole responsibility; it can in no way be taken to reflect the views of the European Commission and/or EAHC or any other body of the European Union. The European Commission and/or EAHC do not guarantee the accuracy of the data included in this report, nor do they accept responsibility for any use made by third parties thereof.

In keeping with our values of integrity and excellence, Matrix has taken reasonable professional care in the preparation of this report. Although Matrix has made reasonable efforts to obtain information from a broad spectrum of sources, we cannot guarantee absolute accuracy or completeness of information/data submitted, nor do we accept responsibility for recommendations that may have been omitted due to particular or exceptional conditions and circumstances.

© Matrix Insight Ltd, 2009

Any enquiries about this report should be directed to [enquiries@matrixknowledge.com](mailto:enquiries@matrixknowledge.com)

## Contents

|            |  |           |
|------------|--|-----------|
| <b>1.0</b> | <b>Executive summary</b>                             | <b>10</b> |
| <b>2.0</b> | <b>Introduction</b>                                  | <b>18</b> |
| <b>3.0</b> | <b>Market overview</b>                               | <b>20</b> |
| <b>3.1</b> | <b>Sales</b>   | <b>22</b> |
| 3.1.1      | Cigarettes   | 22        |
| 3.1.1.1    | Discussion of Findings                               | 25        |
| 3.1.1.2    | Illicit trade  | 27        |
| 3.1.1.3    | Blends   | 30        |
| 3.1.2      | Menthol Cigarettes                                   | 31        |
| 3.1.3      | Roll-Your-Own Tobacco                                | 33        |
| 3.1.4      | Cigars and Cigarillos                                | 37        |
| 3.1.5      | Pipe Tobacco   | 40        |
| 3.1.6      | (Smokeless) Tobacco Products                         | 42        |
| 3.1.7      | Electronic Cigarettes                                | 48        |
| 3.1.8      | Nicotine Replacement Therapy (NRTs)                  | 54        |
| 3.1.9      | Herbal/traditional smoking cessation aids            | 55        |
| 3.1.10     | Tobacco growing                                      | 56        |
| 3.1.11     | Manufacturing  | 61        |
| 3.1.11.1   | Cigarettes   | 61        |
| 3.1.11.2   | Roll-Your-Own Tobacco                                | 62        |
| 3.1.11.3   | Cigars and Cigarillos                                | 63        |
| 3.1.11.4   | Smokeless tobacco                                    | 66        |
| 3.1.11.5   | Electronic Cigarettes                                | 66        |
| 3.1.12     | Retail   | 67        |
| 3.1.12.1   | Tobacco Products                                     | 67        |
| 3.1.12.2   | E-cigarettes   | 70        |
| 3.1.13     | Wholesale  | 71        |
| 3.1.14     | Employment   | 71        |
| 3.1.15     | Industrial Cost Structure of the Tobacco Industry    | 78        |
| 3.1.16     | Industry Dependence on the Tobacco Products Industry | 80        |
| <b>3.2</b> | <b>Trade</b>   | <b>84</b> |
| 3.2.1      | Intra-EU Trade                                       | 84        |
| 3.2.1.1    | Cigarettes   | 84        |
| 3.2.1.2    | Roll-Your-Own Tobacco (RYO)                          | 85        |
| 3.2.1.3    | Cigars and Cigarillos                                | 86        |
| 3.2.2      | Extra-EU Trade                                       | 88        |
| 3.2.2.1    | RYO  | 88        |
| 3.2.3      | Trade in Smokeless Tobacco                           | 91        |
| 3.2.4      | Trade in E-cigarettes                                | 91        |
| <b>4.0</b> | <b>Dimensions of the TPD Review</b>                  | <b>93</b> |

|       |   |     |
|-------|---|-----|
| 4.1   | Packaging and Labelling   | 93  |
| 4.1.1 | Introduction  | 93  |
| 4.1.2 | Baseline regulatory position  | 94  |
| 4.1.3 | Single market considerations  | 94  |
| 4.1.4 | Industry response   | 94  |
| 4.1.5 | Conclusions   | 97  |
| 4.2   | Flavours and Ingredients  | 98  |
| 4.2.1 | Introduction  | 98  |
| 4.2.2 | Baseline regulatory position  | 103 |
| 4.2.3 | Single market Considerations  | 105 |
| 4.2.4 | Industry Response   | 105 |
| 4.2.5 | Conclusions   | 106 |
| 4.3   | Non-Combustible Tobacco Products  | 107 |
| 4.3.1 | Introduction  | 107 |
| 4.3.2 | Baseline Regulatory Position  | 107 |
| 4.3.3 | Single market considerations  | 107 |
| 4.3.4 | Industry Response   | 107 |
| 4.3.5 | Conclusions   | 108 |
| 4.4   | Nicotine Containing Products ('e-cigarettes' and other alternative nicotine delivery mechanisms); | 109 |
| 4.4.1 | Introduction  | 109 |
| 4.4.2 | Baseline Regulatory Position  | 110 |
| 4.4.3 | Single market considerations  | 113 |
| 4.4.4 | Industry Response   | 114 |
| 4.4.5 | Conclusions   | 116 |
| 4.5   | Tobacco Vending machines  | 117 |
| 4.5.1 | Introduction  | 117 |
| 4.5.2 | Baseline Regulatory Position  | 120 |
| 4.5.3 | Single Market Considerations  | 120 |
| 4.5.4 | Industry Response   | 120 |
| 4.5.5 | Conclusions   | 121 |
| 4.6   | On-line sales.  | 121 |
| 4.6.1 | Introduction  | 121 |
| 4.6.2 | Baseline Regulatory Position  | 123 |
| 4.6.3 | Impact Domains  | 123 |
| 4.6.4 | Single Market Perspective   | 124 |
| 4.6.5 | Conclusions   | 124 |
| 5.0   | Economic Analysis of Impact on Reduction in Tobacco Consumption on Employment                     | 125 |
| 6.0   | Bibliography  | 144 |
| 7.0   | Appendices  | 148 |

|        |  |     |
|--------|--|-----|
| 7.1    | Appendix 1: Stakeholders Contact List  | 149 |
| 7.2    | Appendix 2: Summary of Industry Responses to Questionnaire   | 150 |
| 7.3    | Appendix 3: Smoking Prevalence across the EU   | 163 |
| 7.4    | Appendix 4: Calculation of the Total Variable Costs For Packaging and Labelling                      | 164 |
| 7.5    | Appendix 5: Interviews Topic Guide   | 165 |
| 7.6    | Appendix 6: Market value of tobacco across EU-27   | 166 |
| 7.7    | Appendix 7: I-O Multipliers per Industry   | 168 |
| 7.8    | Appendix 8: Hypothetical Example of I-O model  | 175 |
| 7.9    | Appendix 9: Employment-Output Ratios   | 178 |
| 7.10   | Appendix 10: Employment Results  | 181 |
| 7.10.1 | Results: Reduction in tobacco consumption of 1.0 per cent  | 181 |
| 7.10.2 | Results: Reduction in tobacco consumption of 1.5 per cent  | 182 |
| 7.10.3 | Results: Reduction in tobacco consumption of 2.0 per cent  | 185 |
| 7.11   | Appendix 11: Glossary  | 187 |
| 7.12   | Appendix 12: Example of online retailers which might target EU customers in different Member States. | 189 |

## List of Figures

|   |    |
|---|----|
| Figure 1: Comparison of relative market value of tobacco products in 2010.....  | 20 |
| Figure 2: Cigarettes market size across EU27, in billion sticks, 2000-2010 .....  | 22 |
| Figure 3: Cigarettes market size in eight largest EU markets, in billion sticks, 2000-2010 .....  | 23 |
| Figure 4: Cigarettes market value across EU27, in billion EUR, 2000-2010 .....  | 24 |
| Figure 5: Cigarettes market value in eight largest EU markets, in billion sticks, 2000-2010 .....   | 25 |
| Figure 6: 2011-2015 Forecast EU27 cigarettes market size (in billion sticks);2011-2015 forecast EU27 cigarettes market value (in billion EUR) ..... | 25 |
| Figure 7: Total smoking prevalence rates, eight largest volume markets, in per cent, 2000-2010 .....  | 26 |
| Figure 8: Aggregated volume of illicit trade in EU24 (in million sticks) over entire time period 2000-2010. ....                                    | 27 |
| Figure 9: Percentage change in illicit trade of cigarettes (in million sticks), 2000-2010 .....   | 28 |
| Figure 10: EU24 Illicit market of cigarettes (in million sticks), 2000-2010, Euromonitor Forecasts 2011-2015 .....                                  | 29 |
| Figure 11: Illicit trade as a percentage of all cigarettes traded over entire period between 2000 and 2010.....                                     | 29 |
| Figure 12: EU24 Cigarettes market size (in billion sticks) by blend, 2000-2010.....   | 30 |
| Figure 13: Menthol cigarette sales as a percentage of all cigarettes sales over the entire time period 2000-2010 .....                              | 31 |
| Figure 14: EU24 Percentage change in the market size of menthol cigarettes, 2000-2010 .....   | 32 |
| Figure 15: Volume of standard and menthol cigarettes sales across EU 24, (2000-2015) .....  | 32 |
| Figure 16: Roll-your-own tobacco market size, EU27, in thousand tonnes, 2000-2010, forecast 2011-2015 .....   | 33 |
| Figure 17: Country components of total EU27 market size in RYO tobacco, per cent, 2010.....   | 35 |
| Figure 18: RYO Tobacco market size in eight largest markets, in thousand tonnes, 2000-2010 .....  | 35 |
| Figure 19: Roll-your-own tobacco market value, EU27, in billion EUR, 2000-2010 .....  | 36 |
| Figure 20: Cigars and cigarillos market size, EU27, in billion units, 2000-2010 .....   | 37 |
| Figure 21: Cigars and cigarillos market value, EU27, in billion EUR, 2000-2010.....   | 39 |
| Figure 22: Pipe tobacco market size, EU27, in million tonnes, 2000-2010, forecast 2011-2015   | 40 |
| Figure 23: Country components of total EU27 market size in pipe tobacco, per cent, 2010.....  | 41 |
| Figure 24: Pipe tobacco market value, EU27, in million tonnes, 2000-2010, forecast 2011-2015 .....  | 42 |
| Figure 25: Danish chewing tobacco market (in tonnes), 2000-2010, Euromonitor forecast 2011-2015.....  | 43 |
| Figure 26: Slovenian chewing tobacco market (in tonnes), 2000-2010, Euromonitor forecast 2011-2015 .....  | 44 |
| Figure 27: Danish chewing tobacco market value (in million EUR), 2000-2010, Euromonitor Forecast 2011-2015 .....                                    | 44 |
| Figure 28: Slovenian chewing tobacco market value (in million EUR), 2000-2010, Euromonitor Forecast 2011-2015 .....                                 | 45 |

|  |    |
|--|----|
| Figure 29: EU Snuff (snus and dry snuff) market size (in thousand tonnes), 2000-2010, Euromonitor forecast 2011-2015.....                    | 46 |
| Figure 30: EU Snuff (Snus and Dry Snuff) Market Value (in million EUR), 2000-2010, Euromonitor Forecast 2011-2015.....                       | 46 |
| Figure 31: Nicotine Replacement Therapy Market Size, EU22, in billion units, 2000-2010 .....   | 54 |
| Figure 32: Herbal cigarettes market size, EU7, in million units, 2000-2010 .....   | 55 |
| Figure 33: Production of unmanufactured tobacco, EU27, by country, in thousand tonnes, 2000-2009.....  | 57 |
| Figure 34: Production of raw tobacco, by type, EU27, 2007 & 2009 .....   | 57 |
| Figure 35: Area devoted to tobacco farming, EU27, in thousand hectares, 2000-2009.....   | 58 |
| Figure 36: Area devoted to tobacco farming, six largest tobacco-producing countries, in thousand hectares, 2000-2009.....                    | 59 |
| Figure 37: Production value of raw tobacco at producer prices, EU27, in million EUR, 2000-2010.....  | 60 |
| Figure 38: Tobacco farms in EU 27 producers countries.....   | 60 |
| Figure 39: EU27 market (in volume terms) share of 'Big Four' tobacco companies, 2001-2010  | 61 |
| Figure 40: Tobacco products profit margins (in per cent), 2000-2010 .....  | 64 |
| Figure 41: Tobacco products absolute profits (in million EUR), 2000-2010 .....   | 65 |
| Figure 42: Tobacco Retail Channels, (million sticks), by channel, EU 27 (2000-2010).....   | 68 |
| Figure 43: Percentage change in cigarettes (million sticks) sold through different retail channels , selected Member States, 2000-2010 ..... | 69 |
| Figure 44: Aggregate comparison of Tobacco Retail Channel proportions (million sticks), EU27 (2000-2010).....                                | 69 |
| Figure 45: Value chain of the e-cigarette market in Europe.....  | 71 |
| Figure 46: Tobacco Products Number of Employees, 2000-2010 .....   | 73 |
| Figure 47: Tobacco products average employee salary (in EUR), 2000-2010.....   | 74 |
| Figure 48: Tobacco products industry costs (in million EUR), France, 2000-2010.....  | 78 |
| Figure 49: Tobacco products industry costs (in million EUR), Germany, 2000-2010 .....  | 79 |
| Figure 50: Tobacco products industry costs (in million GBP), United Kingdom, 2000-2010 .....   | 79 |
| Figure 51: France, selected sectoral dependence on tobacco products industry as buyer/client (in % of revenue), 2000 and 2010 .....          | 81 |
| Figure 52: Germany, selected sectoral dependence on tobacco products industry as buyer/client (in % of revenue), 2000 and 2010 .....         | 82 |
| Figure 53: United Kingdom, selected sectoral dependence on tobacco products industry as buyer/client (in % of revenue), 2000 and 2010 .....  | 82 |
| Figure 55: Value of intra-EU trade of cigarettes (2000-2010) .....   | 84 |
| Figure 56: Intra-EU trade in Roll-Your-Own tobacco, in tonnes.....   | 85 |
| Figure 57: Absolute change in intra-EU trade in RYO tobacco,2000-2010, in tonnes, by country .....   | 86 |
| Figure 58: Intra-EU exports of cigars and cigarillos, 2000-2010, in million units .....  | 87 |
| Figure 59: Absolute number of cigars and cigarillos exported (intra-EU), in million units, 2010  | 87 |
| Figure 60: Absolute change in exports of cigars and cigarillos, in million units, 2000-2010, by country .....                                | 88 |
| Figure 62: Extra-EU RYO Tobacco Trade (Imports & Exports), 2000-2010, in tonnes .....  | 89 |
| Figure 63: Extra-EU trade of cigars and cigarillos, 2000-2010, in million units .....  | 90 |

|  |     |
|--|-----|
| Figure 64: Vending machines sales as percentage of sales through all retail outlets in selected Member States (2000-2010) .....                | 118 |
| Figure 65: Percentage change in vending sales, selected Member States (2000-2010) .....  | 119 |
| Figure 66: % Online cigarette sales (in million sticks) as a share of aggregated total cigarettes sold between 2007 and 2010 .....             | 122 |
| Figure 67: Key input-output multipliers within tobacco industry .....  | 129 |
| Figure 68: Impact on production associated with a 2% reduction in tobacco consumption .....  | 130 |
| Figure 69: Impact on employment associated with a 2% reduction in tobacco consumption..  | 132 |
| Figure 70: Conceptual model for health and productivity savings associated with reduced tobacco consumption .....                              | 134 |
| Figure 71: Net impact on employment with changes in the output per employee in tobacco products industry .....                                 | 138 |
| Figure 72: Net impact on employment with changes in output per employee in products of agriculture, hunting and related services industry..... | 140 |



## List of Tables

|   |     |
|---|-----|
| Table 1: Overview of relative market value of tobacco and nicotine containing products in 2010 .....                              | 21  |
| Table 2: Market volumes (in thousand tonnes) & market shares (in percent) of snus brands, Denmark & Sweden, 2010 .....            | 47  |
| Table 3 - Examples of other e-cigarette brands available in the EU (excluding UK) .....   | 51  |
| Table 4: Tobacco farms in EU 27 producers countries .....   | 60  |
| Table 5: RYO tobacco producers & EU market share .....  | 62  |
| Table 6: Main players in the cigars & cigarillos market .....   | 63  |
| Table 7: Main players in the chewing tobacco and snuff market .....   | 66  |
| Table 8: Number of employees in the manufacture of tobacco products .....   | 72  |
| Table 9: Number of employees in the retail sale of tobacco products .....   | 76  |
| Table 10: Number of employees in the wholesale of tobacco products.....   | 77  |
| Table 11: Import and export values of smokeless tobacco, selected countries.....  | 91  |
| Table 12: Flavoured Cigarettes Market and Product Developments .....  | 101 |
| Table 13: Regulatory options for nicotine products in Europe .....  | 114 |
| Table 14: Health and market considerations under different regulatory options .....   | 116 |
| Table 15: Overview of online sales regulation for tobacco products (EU 27) .....  | 123 |
| Table 16: Economic impact of 0.5% to 2% reduction in tobacco consumption (€m, 2010 prices) .....                                  | 125 |
| Table 17: Company revenue losses associated with a reduction in tobacco consumption (€m, 2010 prices).....                        | 126 |
| Table 18: Increased spending on other products as a result of a reduction in tobacco consumption (€m, 2010).....                  | 127 |
| Table 19: Summary of industry-level employment-output ratios (€bn, 2010 prices).....  | 131 |
| Table 20: Lifetime and annual health and productivity benefits associated with one person quitting smoking (€, 2010 prices) ..... | 135 |
| Table 21: Spending patterns of a general consumer vs. ex-smoker.....  | 136 |
| Table 22: Economy-wide impact on output and employment using different spending patterns (€m, 2010 prices) .....                  | 137 |
| Table 23: Percentage of adult cigarettes smokers.....   | 163 |
| Table 24: Market value of tobacco EU-27(in €m).....   | 166 |
| Table 25: Post-tax market value of tobacco EU-27 (in €m) .....  | 167 |
| Table 26: I-O multipliers .....   | 168 |
| Table 27: Employment-output ratios .....  | 178 |
| Table 28: The impact on employment associated with a reduction in consumption of 1.0 per cent.....                                | 181 |
| Table 29: The impact on employment associated with a reduction in consumption of 1.5 per cent.....                                | 182 |
| Table 30: The impact on employment associated with a reduction in consumption of 2.0 per cent.....                                | 185 |
| Table 31: List of 21 Websites Selling online Tobacco Products and How they Deal with Taxation .....                               | 190 |

## 1.0 Executive Summary

### 1.1 Introduction

- This study was commissioned to support the review of the Tobacco Products Directive (TPD) (2001/37/EC).
- The Tobacco Products Directive 2001/37/EC has two main objectives: (1) facilitating the functioning of the internal market in the tobacco products sector; and (2) ensuring a high level of public health.

### 1.2 Study Aims

- The study seeks to account for current developments in the market for tobacco products and associated regulatory regimes operating within Member States. This work consists of a description of the market of tobacco, nicotine and related products in the EU as well as trends and dynamics of the given markets, including (1) description of relevant products available on the EU market, (2) business operators involved, (3) trade within the EU and with third countries.
- The study is one of several sources giving input to the IA carried out by DG SANCO. It aims to provide the Commission with a robust evidence base, which will help inform their current review of the TPD.
- The public health dimension of the TPD was not part of the scope of this study.
- The scope of the project did not allow for comprehensive engagement with stakeholders representing all aspects of the 'value chain'.
- The Commission has required the study to be focussed on the following five areas:
  - Packaging and labelling;
  - Flavours and ingredients;
  - Non-combustible tobacco products and 'e-cigarettes' (including alternative nicotine delivery mechanisms);
  - Vending machines; and
  - On-line sales.

### 1.3 Methodology

- The study was undertaken over an eighteen-week period utilising the following methods:
  - **Market data review** – to provide an overview of the market for tobacco and nicotine products;
  - **Industry interviews** – to assess industry views on the impact of regulatory change and to seek quantifiable data from industry on the impact of regulatory change;
  - **Industry data request** – an industry questionnaire focussed on understanding production costs; and
  - **Economic modelling** – an input/ output model to assess the impact on employment of any reduction in consumption.

## 1.4 Market Trends

- Over the last decade there has been an overall reduction in tobacco sales and smoking prevalence although there is not a complete understanding of the dynamics of regulatory change as it impacts on smoking trends and the tobacco industry.
- Overall sales of cigarettes in the EU have declined from 793.7 billion sticks in 2000 to 608.8 billion sticks in 2010 (a 23.3% reduction).
- Overall sales of Roll Your Own (RYO) have increased from 53.1 thousand tonnes in 2000 to 75.5 thousand tonnes in 2010 (a 42.2% increase).
- This increase in RYO consumption is equivalent to 12% of the reduction in cigarette volumes outlined above, although a definitive causal association between the two has not been established as part of this study.
- Overall sales of cigars have decreased from 3.1 billion units in 2000 to 1.9 billion units in 2010, which equates to a 3.8% decrease.
- Overall sales of cigarillos have increased by 3.3 billion units between 2000 (4.6 billion units) and 2010 (7.9 billion units), namely a 72% increase. The majority of this increase can be accounted for by the growth of the 'eco-cigarillo' market – principally a means to market cigarettes at lower tax levels.
- Estimations of smoking prevalence suggest that prevalence reductions have been lower than cigarette sales reductions in more than half of all EU countries.
- The overall size of illicitly traded cigarettes within the EU grew from 56.5 billion sticks in 2000 to 80.5 billion sticks in 2010. According to Euromonitor forecasts, the overall volume of illicit trade will increase over the coming five years at roughly 1% per year to reach 83.25 billion sticks by 2015.
- Recent market developments relevant to the provisions within the TPD include:
  - Distinctive flavoured cigarettes such as 'pina colada' and 'chocolate';
  - Premium brand development including new products and technical innovations relating to filter type and use; and
  - E-Cigarettes and related nicotine products.
- Cigarettes production is increasingly concentrated within four companies and whilst overall sales in the EU have fallen over the last decade from 793.7 billion sticks to 608.8 billion sticks there has been an attempt to protect profit levels through a combination of rationalisation, cost savings, premium product development and price increases.
- Variable costs of overall production destined to EU markets can mainly be broken down into:
  - leaf tobacco costs;
  - direct materials costs - including cigarette paper, hinge lids, wrapping material, filters, cartons, inks); and
  - conversion costs – including labour costs and manufacturing overhead costs incurred in converting a material from one form or type into another).<sup>1</sup>
- Tobacco farming accounts for 4.1% of global production, with Italy and Bulgaria the largest of the six main EU tobacco growing countries. Overall production of

---

<sup>1</sup> These costs could also include supply chain costs (see Appendix 2 for details).

unmanufactured tobacco in the EU decreased by 31% from 439 thousand tonnes per annum in 2000 to 304 thousand tonnes in 2009. Employment levels in the tobacco growing sector are around 80,000 with Bulgaria accounting for approximately 50% of these jobs.

- Intra-EU trade in tobacco products displays different patterns. According to Eurostat data, trade in cigarettes has declined over the past decade, while its value has increased. Trade in RYO increased, while trade in cigars and cigarillos has fluctuated over the same period.

## 1.5 Packaging and Labelling<sup>2</sup>

- **Baseline market position** – Non-tobacco-related costs including packaging and labelling accounts for approximately 37% of overall variable production costs of the four largest producers. Significant elements of the packaging and printing process are outsourced, with industry stating that they often sub-contract in order to encourage competition.
- **Baseline regulatory position** – The current TPD sets out that text warnings should be on tobacco packs and that the use of pictorial warning labels is optional. In May 2005, the European Commission adopted a library of 42 colour photographs and other illustrations Member States may choose to use. Eight MS are currently using picture warnings (as of 1 Feb).
- **Single market perspective** - Changes to the TPD could include harmonisation of rules regarding packaging and labelling.
- **Industry Views** - Industry contest any significant impact on prevalence of labelling and packaging regulation and suggest the following ‘unintended’ consequences:
  - **Intellectual property rights** – industry contends that larger labelling requirements and/or plain packaging would lead to the erosion of valuable intellectual property as they would lead to an “expropriation” of important display areas of the package. Industry did not provide evidence to substantiate the claim or to quantify the value of lost IPR.
  - **Sales** – industry contends that increases in warning size, pictorial warnings and plain packaging all result in an increase in illicit trade. However, a 2011 Deloitte study<sup>3</sup> commissioned by the industry was unable to establish a statistical significant causal link between warning changes and a growth in the illicit market.
  - **Marketing** – according to industry’s responses to the questionnaire, foreseen labelling and packaging regulation could reduce the industry’s ability to market products effectively with consequences for premium products as consumers move to lower value products and/or purchase counterfeit products. Industry did

---

<sup>2</sup> No data was available on Euromonitor, or any other database, relevant for the packaging and labelling. Therefore, the related section in the report relies on the information provided by the industry through the interviews and the completed Questionnaire.

<sup>3</sup> Deloitte (2011): “Tobacco Packaging Regulation: An international Assessment of the intended and Unintended Consequences.” A Deloitte Report for British America Tobacco, page 24.

not provide case study evidence of this having happened in any particular country.

- **Cost of complying with health warning regulation** – the reported one-off costs associated with the introduction of pictorial health warnings in Belgium were between €14,500 and €20,000 per Single Stock-keeping Unit (SKU). In addition to the one-off costs the additional (variable) manufacturing costs are estimated to be between 1.3 and 1.5% of the total variable costs.<sup>4</sup>
- **Single Market Perspective** – according to industry’s responses to the questionnaire, the standardised approach to packaging across the EU could reduce their overall cost of compliance with regulatory change.

**Conclusions** – differences in national regulations on tobacco labelling and packaging provide a rationale for intervention. Industry representatives provided views on a range of unintended consequences based on actual regulatory change but were not able to provide specific quantified evidence that would support such a view. The financial impact on the industry of any further harmonisation i.e. changes to warning labels, pictorial warnings or plain packaging could be mitigated by providing timescales to allow industry to introduce changes as part of their normal package change cycle. A single point of harmonisation as compared to consecutive changes at national level - could save costs for larger producers.<sup>5</sup>

## 1.6 Flavourings & Ingredients

- **Baseline market position** – a limited number of small producers specialise in the production of characterising flavoured cigarettes. The four principal manufacturers seek to make a clear differentiation between sweet-flavoured products (e.g. vanilla) and menthol on the basis of menthol being an ‘established product’. Menthol has generated 4% of all cigarettes sales (by volume) over the past ten years across the EU.
- **Baseline regulatory position** – different approaches as regards ingredients in different MS, including positive lists, negative lists or no regulation. Most national legislation is based on toxicity considerations. There are limited restrictions on ingredients/products based on attractiveness across EU, but a small number of EU countries have recently started to introduce such measures (e.g. France on vanilla).
- Changes to the TPD could include the regulation or banning of certain ingredients based on attractiveness, or a complete ban on all flavours.
- **Industry views** – industry contends the main impacts of regulatory change would be on consumer choice i.e. consumers would either reduce consumption, change product or purchase products from the illicit market. However, no specific quantified evidence was provided by Industry of the actual impact in countries where flavouring has been subject to regulation. Furthermore, a ban on ingredients would entail changing the composition of at least 76% of the market (in volume terms), which is made up of American blend cigarettes. Because of the resulting reduction in demand for Burley and Oriental

---

<sup>4</sup> The total variable costs amount to €5 billion.

<sup>5</sup> For more details of Industry responses, see Appendix 2.

tobacco, there could be an impact upon growing, production and internal trade within the EU.

- **Single market perspective** – None assessed.
- **Conclusion** – Differences in national regulations on flavours and ingredients provide a rationale for intervention.

## 1.7 Non-Combustible Tobacco Products (NCTPs)

- **Baseline market position** – this market includes oral (snus), chewing and nasal tobacco. According to the Eurobarometer (2009)<sup>6</sup>, one-tenth of EU citizens (50 millions) have tried non-combustible tobacco products such as dry snuff, snus or chewing tobacco at least once in their life. Two percent (10 million) currently use such products, either daily or occasionally (both 1%). Small by comparison with the cigarette and rolling tobacco markets, there are within it a number of distinct niche geographic, social and ethnic markets.
- Chewing tobacco:
  - In the UK, chewing tobacco is common among the Bengali community. 19% of Bengali men and 26% of Bengali women use it.
  - In **Denmark** chewing tobacco remains by far the most popular smokeless tobacco product and sales have been increasing since 2000 (4 tonnes) to reach 14.2 tonnes in 2010, which is a total increase of 255%.
- Snuff (dry snuff and snus):
  - **Sweden** represents the largest market with 5.7 thousand tonnes of snus sold in 2010,<sup>7</sup> followed by **Germany** (170.4 tonnes of dry snuff in 2010) and **Denmark** (26.5 tonnes of dry snuff and snus combined in 2010). Overall, sales of snuff in these three countries increased by 10.4% (from a total of 5.3 thousand tonnes to **5.9 thousand tonnes in 2010**) and they are expected to reach 6.1 thousand tonnes in 2015. Sales increased in Denmark (by 502.3%) and Sweden (by 20.5%) Germany saw a decrease in the beginning of the century, but in last years the market has stabilised or even increase.
  - In 2006 the national prevalence of male snus users in Sweden among aged 16-84 years who consumed the product daily was 21% while female was 4%. In Finland snus use has been growing over the past years. According to a report from the National Product Control Agency about 7% of adults were using snus in 2005.
  - Snus is a source of income for Baltic Sea ferries operating Between Finland and Sweden. The net profit contribution for the Baltic Sea shipping industry from the snus sale is estimated to 25 million € for 2009.
- **Baseline regulatory position** – chewing and nasal tobacco are legal in the EU; the marketing of oral tobacco (Swedish snus) is prohibited, except in Sweden.

<sup>6</sup> [http://ec.europa.eu/public\\_opinion/flash/fl\\_253\\_en.pdf](http://ec.europa.eu/public_opinion/flash/fl_253_en.pdf), page 9.

<sup>7</sup> The Swedish Market mainly covers snus, the German market mainly covers dry snuff while the Danish market cover both. See Section 4.3 for more details.

- Changes to the TPD could include extending the ban that applies to snus to other smokeless products, or lifting the Europe-wide ban on snus.
- **Industry views** – industry representatives contend that the ban on snus has an impact on:<sup>8</sup>
  - Baltic sea trade, whereby the net profit contribution for the Baltic Sea shipping industry from the snus sale is estimated to €25 million for 2009.
  - Retail, taxes and employment in the EU. In Sweden, snus annually generates taxes of about € 330 million, gross profits for the retail sector amounting to € 150 million, and employs more than 2,000 people directly. Industry asserts that snus sales, if Swedish prevalence became common across the European Union and sales of cigarettes remained unchanged, could potentially generate gross profits to the retail sector of €3 billion–9 billion per year, generate taxes in the order of €5 billion, and generate employment in the region of 10,000 to 20,000 persons.<sup>9</sup>
- **Conclusions** – the status quo appears problematic from a regulatory perspective, with different NCTPs treated differently across Member States.

## 1.8 Other Nicotine Products

- **Baseline market position** – this market is principally concerned with e-cigarettes. There is a great deal of uncertainty around the market size and market value of e-cigarettes. However, there is a consensus that it is a rapidly growing and dynamic market.
- **Baseline regulatory position** - regulation of nicotine products differs widely across Member States. While in some countries e-cigarettes are banned, in other countries they are not subject to any specific regulation (GPSD applies). Where there is regulation, e-cigarettes are regulated either as pharmaceutical products or tobacco products.
- Changes to the TPD could include the options to regulate e-cigarettes as consumers' products, as tobacco products or ban them unless regulated as pharmaceuticals.
- **Industry views** – regulating e-cigarettes as a licensed medical product, as a consumer good, or as a tobacco product would have different market consequences (in terms of product availability). Considerations about banning the product should take into account the possible consequences on the emergence of illicit products and their associated risk.
- **Single market perspective** – there could be savings from a common regulatory regime in terms of monitoring costs and reduced risk from the removal of unregulated products from the market.

---

<sup>8</sup> Ibid.

<sup>9</sup> Swedish Retail Institute (HUI) 2009 “Snus sense? The effect of the export restrictions on the Swedish economy” cited in the material provided by Swedish Match, December 2012. It is important to read these figures with a critical eye, as they do not appear to take into account corresponding/any reduction of cigarette market even though the substitution argument is used by the same stakeholders as a reason for lifting the current ban.

- **Conclusions** – a status quo option looks problematic as it does not address increasing variations across Member States. A ban could have an impact on an area where views on the potential harm reduction benefits are still being assessed.

## 1.9 Tobacco Vending Machines

- **Baseline market position** – the precise overall market size of Tobacco Vending Machines (TVM) has not been quantified. Data for the Member States where no bans are currently in place show that between 2000 and 2010, a total of 817 billion cigarettes were sold through vending machines (data only available for 10 out of 13 MS allowing TVM). In 2010 alone, 51 billion cigarettes were sold from vending machines in these countries. Over the same period the overall volume of cigarettes purchased through vending machines as a share of total cigarettes sold was 19% (16% in 2010 alone). Data on intra-EU trade of tobacco vending machines (TVM) are not readily available. Interviews with four of the main players reveal that these companies engage in considerable cross border trade in TVM.
- **Baseline regulatory position** – TVM bans are in place in fourteen Member States. Where TVM are allowed, they now employ age verification technologies, which restrict under-age access. Technical requirements for age verification vary significantly between Member States leading to enforcement concerns in some Member States.
- **Industry views** – industry believes the main impact would be felt by the vending machine industry itself,<sup>10</sup> elements of which are owned or operated by larger tobacco companies. Secondly impact domains would include bars and clubs, these being the traditional location for TVMs.
- **Single market perspective** – cost savings from a common EU wide regulatory regime would depend on whether a ban or harmonisation of technical requirements is imposed.
- **Conclusions** – bans have in the main been introduced in Member States with relatively small TVM markets and industry also claims any EU wide ban on TVMs could have an effect on illicit trade, although no supporting empirical evidence was provided to substantiate this claim.

## 1.10 On-line Sales

- **Baseline market position** – the on-line market has three components: domestic, intra-EU and trade from third countries. Each has distinct drivers and each needs to be considered separately. Euromonitor reports that between 2007 and 2010, a total of 8.7 billion sticks of cigarettes were sold on-line in ten Member States.
- **Baseline regulatory position** – on-line sales of cigarettes are not allowed in more than half the Member States. Where there is no blanket ban on on-line sales, an important distinction needs to be made between domestic and cross-border on-line sales and between retail and trade sales.
- Changes to the TPD could include a ban on cross-border online sales.

---

<sup>10</sup> Interviews with the TVM industry were carried out with TVM manufacturers and not with operators. While some manufacturers might also act as operators, they did not specify this and answered the questions in their capacity as producers.



- **Industry views** – industry believes that regulation or ban of intra EU on-line sales would principally impact on wholesalers and retailers. This is mainly because manufacturers do not sell to the public directly, neither online nor through other channels.<sup>11</sup>
- **Single market perspective** – cross-border online transactions are almost exclusively motivated by lower prices or exploiting differences in national tax regimes for tobacco products.
- **Conclusions** – intra EU on-line sales are driven almost exclusively by tax and duty differentials. This type of sale undermines the effects of the TPD as many of the products bought on-line do not comply with TPD provisions (e.g. health warnings and ingredients). Member State on-line sales raise issues of age verification similar to the vending market and options to regulate or ban should at least in part be considered on this basis.

### 1.11 Impact Modelling

- **Method:** traditional modelling has focused on value chain alone, but the Matrix 'Input/Output' model estimates the direct and indirect effects associated with a change in demand for a particular industry.
- **Findings:** the net impact on EU employment as a consequence of hypothesised reduction in smoking prevalence is limited.
- **Industry View:** such an assessment needs to be set against the industry's assertion of 'unintended consequences' impacting across the value chain (illicit trade and product choice) (resulting from reduced sales). Industry has commissioned work to model such unintended impacts, but was not able to provide evidence of actual impact from markets where significant regulatory change has already been implemented.
- **Conclusion:** Economic modelling suggests that while a reduction in tobacco consumption leads to job losses in the tobacco sector, this is offset by the gains in employment in the production of goods and services purchased by former smokers with the money not spent on tobacco products.

---

<sup>11</sup> Some exceptions of direct sale apply, as a limited number of manufacturers own tobacco vending machines in some markets.

## 2.0 Introduction

This study was commissioned in the context of the review of the Tobacco Products 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 (hereafter TPD).<sup>12</sup> The TPD has two main objectives: (1) facilitating the functioning of internal market in tobacco products sector and (2) ensuring a high level of public health.

### 2.1 Study scope

This study was commissioned in the context in the context of the review of the Tobacco Products Directive (hereafter the TPD). As per Terms of Reference (TOR), **it consists of a description of the market of tobacco, nicotine and related products in the EU as well as trends and dynamics of the given markets**, including (1) description of relevant products available on the EU market, (2) business operators involved, (3) trade within the EU and with third countries. This analysis will provide DG SANCO with a robust evidence base to feed into the problem definition of its Impact Assessment and a starting point to determine internal market aspects of various policy options considered in the context of the review of the TPD.

### 2.2 Study methodology

This study was undertaken over a twelve-week period utilising a multi-method approach based upon:

#### **Market data review**

A market data review was undertaken to provide an overview of the market for tobacco and nicotine products. Analysis focussed on data primarily obtained from Euromonitor, one of the leaders in market research and analysis for industries, countries, companies, and consumers.

Data collection was supplemented by Eurostat data and by desk research within OECD, UNIDO, WHO and other databases, as well as in almost 100 individual websites (e.g. online retail, electronic cigarettes, smokeless cigarettes, tobacco vending machines, etc.).

#### **Interviews and questionnaire**

A series of interviews were undertaken with the tobacco industry to assess impact domains for prior regulatory change and to gather impact data on such change. Semi-structured interviews were conducted with representatives of six tobacco manufacturers. The interviews were supplemented by a formal data request through questionnaires. Some of the responses were received in late December 2011, and others in early January 2012. The completed questionnaires contain confidential material that has not been shared with third parties (including the European Commission). The responses were made anonymous and aggregated into a single "Industry Response" data sheet. Some data has been used to fill gaps in specific

---

<sup>12</sup> The TPD was amended by Regulation (EC) No 596/2009 of the European Parliament and of the Council of 18 June 2009

sections of the report (e.g. packaging and flavours). A summary of all the answers is provided in Annex 2.

Interviews were also conducted with other stakeholders to collect data, to assess impact domains for prior regulatory change and to gather impact data on such change in relation to e-cigarettes and other inhaled smokeless nicotine products, online retail, and tobacco vending machines. Semi-structured interviews were conducted with over 20 stakeholders across Europe.

### 2.3 Economic modelling

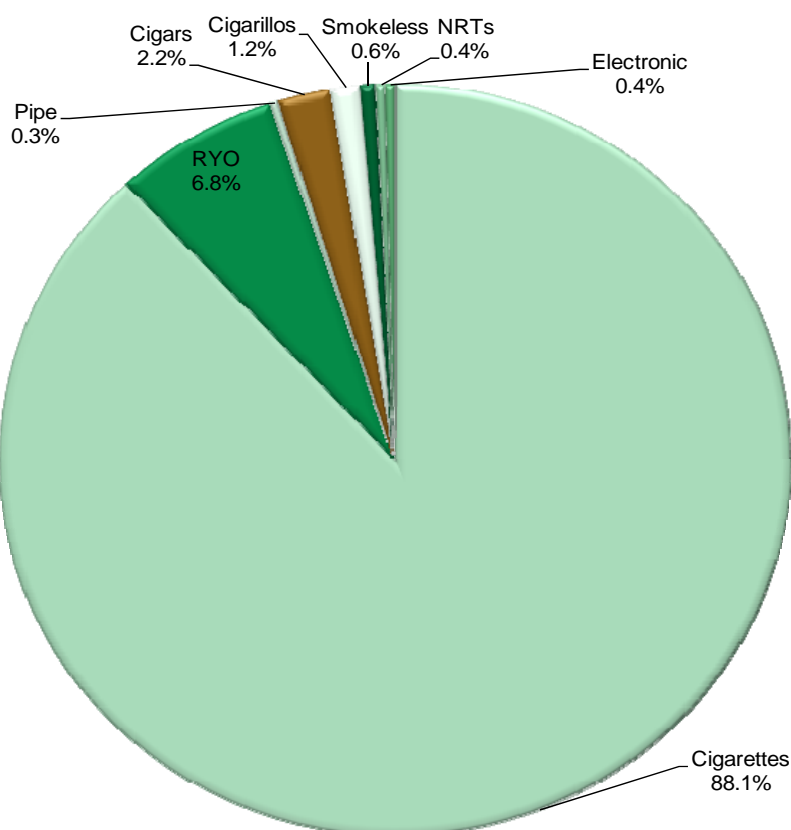
An input/ output model was built to analyse the impact of any reduction in the consumption of tobacco products on employment. .

### 3.0 Market Overview

This section provides an overview of the market size and market value, including forecasts,<sup>13</sup> of tobacco and nicotine products in the EU27 with a focus on:<sup>14</sup>

1. Cigarettes
2. Blends
3. Menthol cigarettes
4. Roll-Your-Own (RYO) tobacco
5. Pipe tobacco
6. Cigars and cigarillos
7. Smokeless tobacco products
8. Nicotine replacement therapy (NRTs)
9. Electronic cigarettes
10. Herbal cigarettes

Figure 1: Comparison of relative market value of tobacco products in 2010<sup>15</sup>



Source: Euromonitor, and industry estimates.

<sup>13</sup> Euromonitor bases its forecast projections on historic trend analysis of 15 years or more and taking industry insider views on the future into account through a trade survey.

<sup>14</sup> Nicotine drinks, Nicotine Sweets are addressed in the separate missing Data Report.

<sup>15</sup> Note that herbal cigarettes are not included in this, because a reliable estimate of market value could not be calculated based on Euromonitor data

This section also includes an overview of the tobacco industry, including farming, manufacturing retail and wholesale, as well as a trade overview, both intra and extra-EU trade of tobacco products.

### Relative Market Values of Tobacco and Nicotine Products

Table 1 provides an overview of the relative market value of a number of tobacco products in 2010. The overall market value<sup>16</sup> of tobacco products (cigarettes, RYO tobacco, pipe tobacco, cigars, cigarillos, smokeless tobacco, NRTs and herbal cigarettes) was €136.5 billion in 2010, of which 88% consisted of cigarettes.

**Table 1: Overview of relative market value of tobacco and nicotine containing products in 2010**

| Tobacco / Nicotine Product   | Market Value in billion EUR, 2010 |
|------------------------------|-----------------------------------|
| Cigarettes                   | 121.3                             |
| RYO Tobacco                  | 9.3                               |
| Pipe Tobacco                 | 0.48                              |
| Cigars                       | 2.98                              |
| Cigarillos                   | 1.67                              |
| Smokeless Tobacco            | 0.83                              |
| <b>Total</b>                 | <b>136.5</b>                      |
| Nicotine Replacement Therapy | 0.56                              |
| Electronic Cigarettes        | 0.50                              |

Source: Euromonitor, and industry estimates.

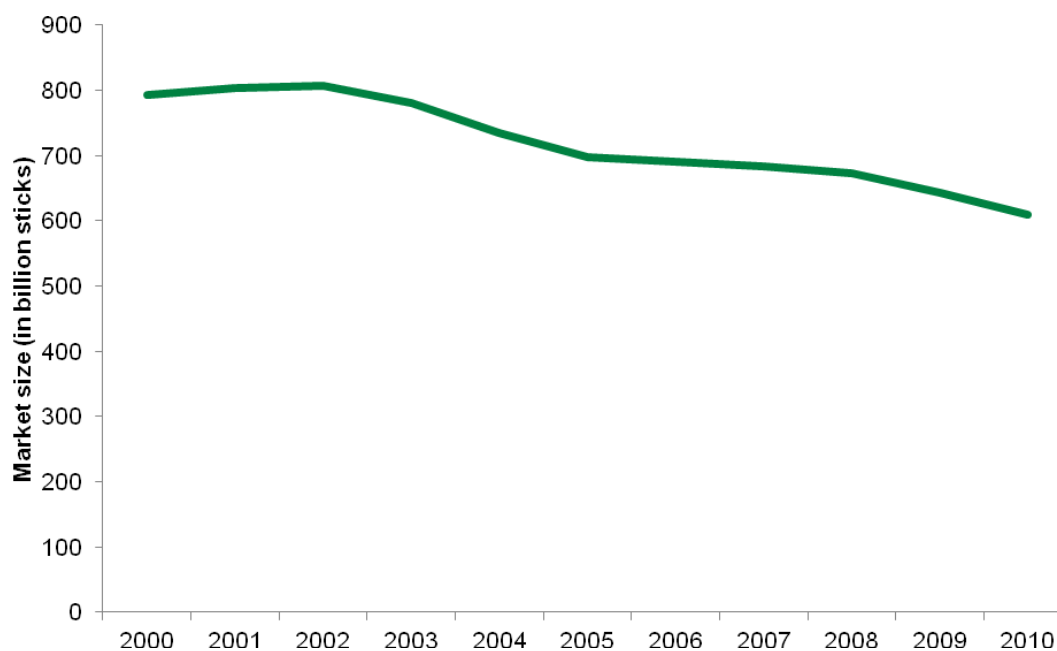
<sup>16</sup> These are in current terms. A precise definition of how the market value is calculated is provided below in the report.

### 3.1 Sales

#### 3.1.1 Cigarettes

The volume of the EU cigarettes market in 2010 was 608.8 billion<sup>17</sup> sticks. This represents a volume sales decline of 23.3% in comparison to 2000, when 793.7 billion sticks were sold across the EU.

Figure 2: Cigarettes market size across EU27, in billion sticks, 2000-2010

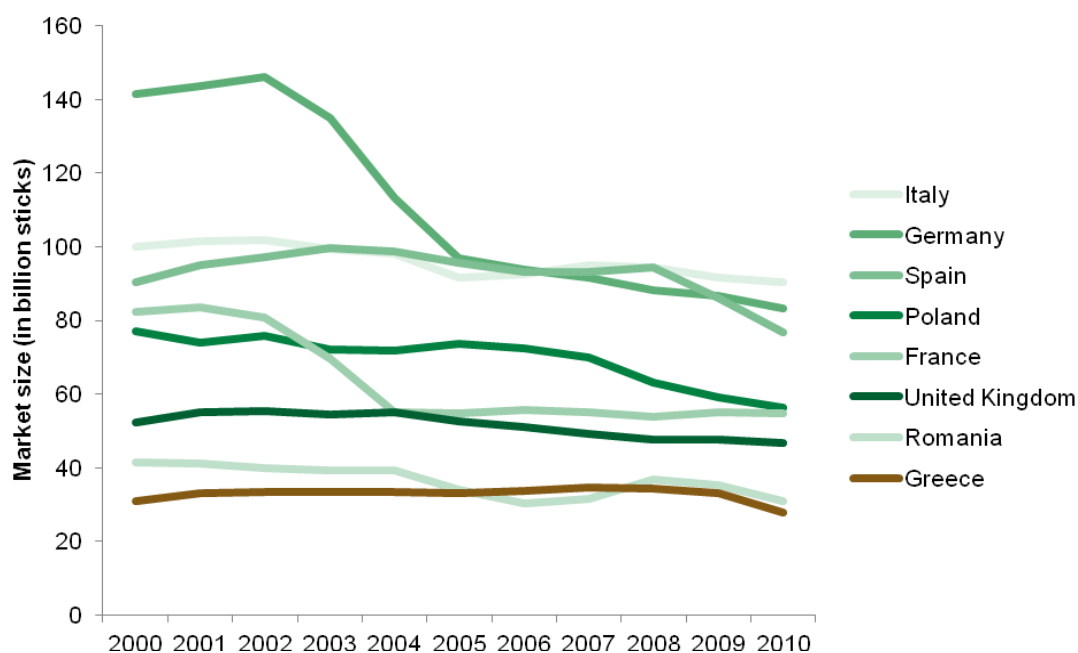


Source: Euromonitor

Figure 3 depicts the volume sales development across the eighth largest EU cigarette markets, which together represent 77% of the EU cigarettes market.

<sup>17</sup> Throughout this report, billion refers to 1000 million, trillion to 1000 billion.

Figure 3: Cigarettes market size in eight largest EU markets, in billion sticks, 2000-2010<sup>18</sup>



Source: Euromonitor

The most noteworthy development is that of a significant reduction in the German market size, from just over 140 billion sticks in 2000 to under 90 billion sticks in 2010, although it is likely that a proportion of this reduction was matched by increases in roll your own and other tobacco products. The Italian market is now the largest in the EU, comprising just over 90 billion sticks.

The overall market value of cigarettes across the EU, measured in current (nominal) prices<sup>19</sup>, was €121.3 billion in 2010. This represents an increase of 33.8% from the €90.7 billion market value recorded in 2000.<sup>20</sup> This increase could be explained by the increase in taxes, annual inflation, and/or a shift to premium brands.

Figure 4 depicts the eight biggest markets in terms of market value of cigarettes sold, which together represent 79% of the total EU27 market value of cigarettes.<sup>21</sup>

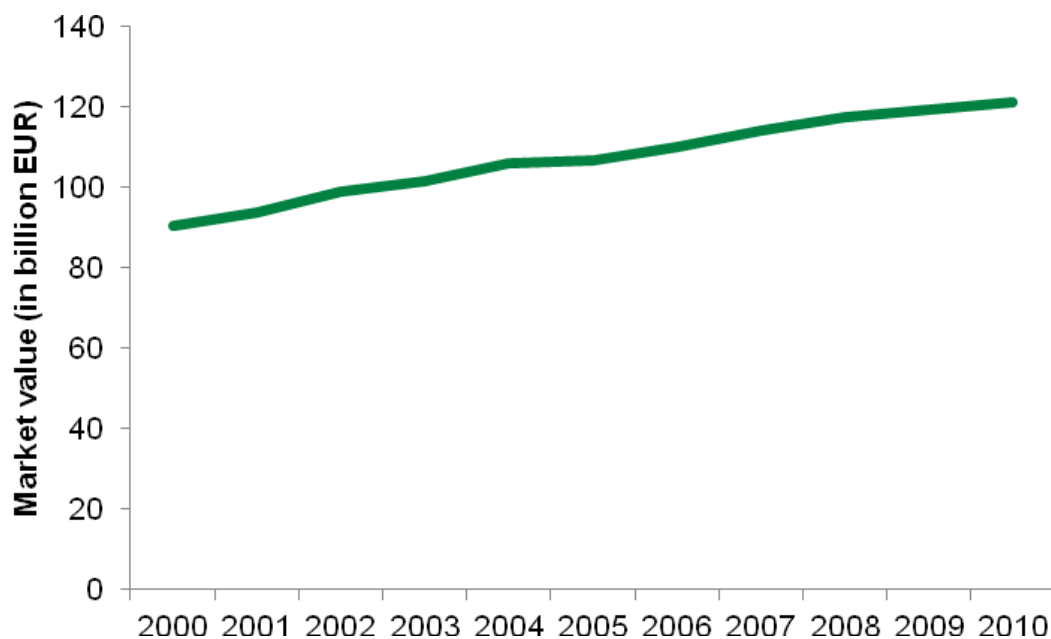
<sup>18</sup> Note that the legend is ranked from largest to smallest of the selected markets in 2010.

<sup>19</sup> For non-Euro countries, local currency values are transformed into Euro values using constant 2010 exchange rates provided by Euromonitor. For the following countries, the following units of local currency per Euro are utilised: BG 1.957; CZ 25.291; HU 275.393; LV 0.703; LT 3.452; PL 3.992; RO 4.209; DK 7.448; SE 0.545; UK 0.857. For all other countries not using the Euro during the entire period, the fixed Euro conversion rates are used throughout the time period by Euromonitor (cf. <http://www.ecb.int/euro/intro/html/index.en.html>)

<sup>20</sup> Note that, by definition, these nominal values do not take inflation into account. This means that cigarette price increases cannot be solely attributed to cigarette-specific factors, due to the overall price level increases within the EU over the time period. If the general price level increases over the time period are taken out of the cigarette price increases, the real (i.e. above economy average) market value of cigarettes increased by 6.7% across the EU. Unless otherwise noted, all references to prices and market value throughout this report are in nominal terms.

<sup>21</sup> The available data do not allow to breakdown the market value into taxes and industry revenues, and there is no central source on tax revenue from cigarette sales between 2000 and 2010. The evolution of minimum tax rates on cigarettes, as

Figure 4: Cigarettes market value across EU27, in billion EUR, 2000-2010



Source: Euromonitor

Whilst Italy represented the largest cigarette market in volume terms in 2010, Germany has consistently remained the largest cigarette market in value terms since 2000. Whilst the nominal value of the German cigarettes market was €19.3 billion in 2000, it was €19.5 billion in 2010.

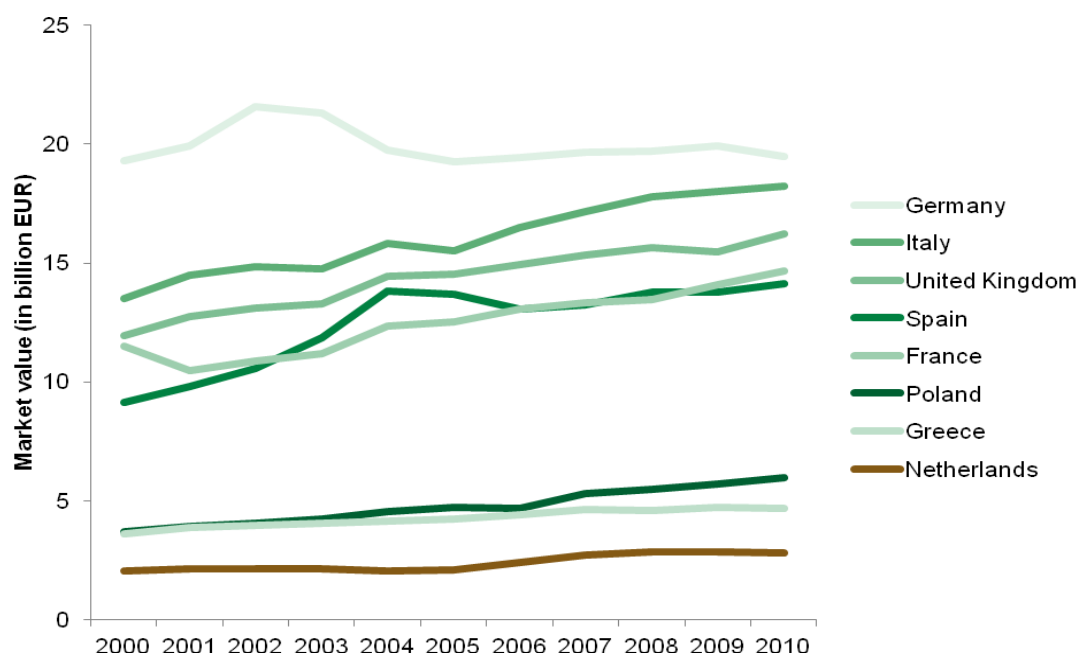
---

defined by EU Directives, is outlined at

[http://ec.europa.eu/taxation\\_customs/taxation/excise\\_duties/tobacco\\_products/legislation/index\\_en.htm](http://ec.europa.eu/taxation_customs/taxation/excise_duties/tobacco_products/legislation/index_en.htm)



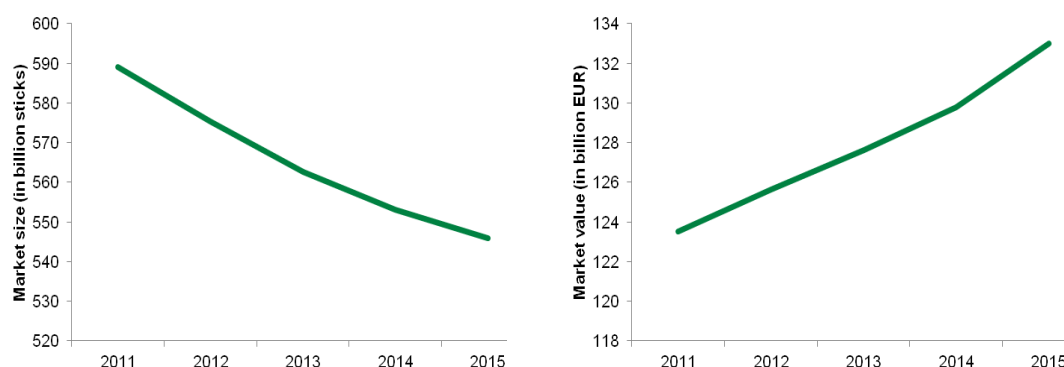
Figure 5: Cigarettes market value in eight largest EU markets, in billion sticks, 2000-2010



Source: Euromonitor

In **forecast terms**, volume sales are expected to continue decreasing over the next five years, according to Euromonitor data forecasts whilst the market value of cigarettes is expected to continue increasing. Market size across the EU is expected to fall to 545.9 billion sticks by 2015, whilst market value is forecast to increase by €133 billion by 2015. The volume of cigarette sales is thus expected to fall by 7%, whilst the value of cigarette sales is expected to increase by 8%.

**Figure 6: 2011-2015 Forecast EU27 cigarettes market size (in billion sticks); 2011-2015 forecast EU27 cigarettes market value (in billion EUR)**



Source: Euromonitor

### 3.1.1.1 Discussion of Findings

Stakeholders<sup>22</sup> and expert analysis<sup>23</sup> refer to the fact that three main factors may lie behind the reduction in cigarette sales:

- a) Substitution to cheaper Roll-Your-Own (RYO) tobacco (*rise in RYO sales*).
- b) Substitution towards purchasing cheaper illegal cigarettes (*rise in illegal sales*).
- c) Falls in smoking prevalence.

Whilst analysing the causes of reductions in cigarette sales is beyond the scope of this study, it is still key to note that these are likely contributing factors. **Nevertheless, the reduction in cigarette sales does not prove a causal link to any one of them.** In fact, while the decrease in the market size of cigarettes has coincided with rising RYO sales (see below), rising illegal sales (see below) and falls in smoking prevalence,<sup>24</sup> it is not possible to establish to what degree the sales volume falls can be explained by any of these factors. The Figure below gives an overview of smoking prevalence in the eight largest volume markets<sup>25</sup>.

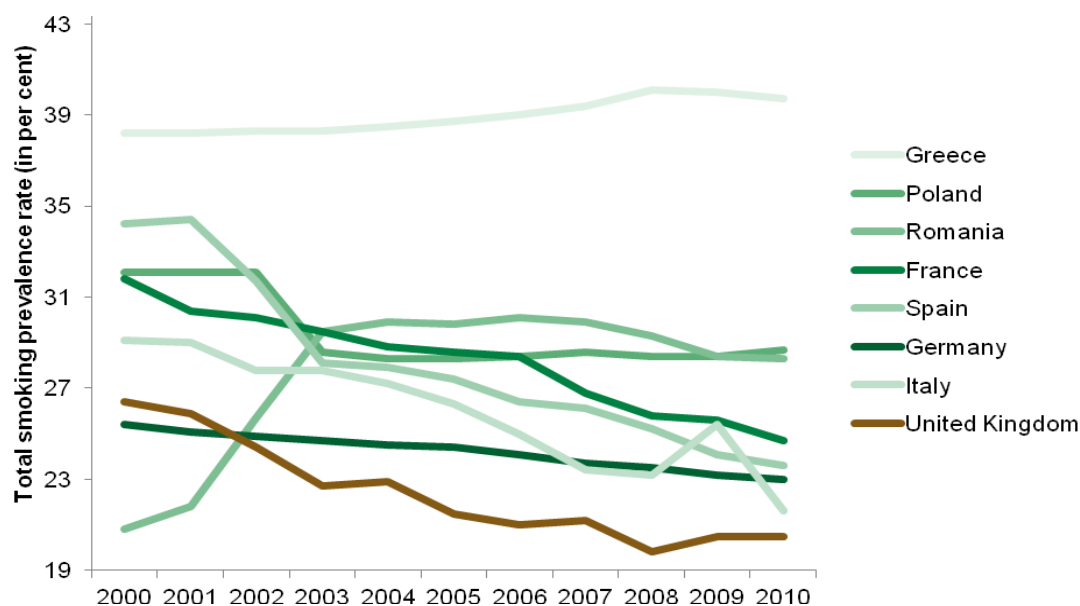
<sup>22</sup> Interviews with the tobacco industry, referred to below in the report.

<sup>23</sup> Euromonitor briefings on “Illicit trade in cigarettes – an introduction”, 6 September 2007, “UK roll-up trend”, 16 April 2009, among others.

<sup>24</sup> In private communication with Euromonitor, it was stated that, within Euromonitor’s dataset, “smoking prevalence generally means the proportion of the legal (adult) smoking population (which varies a bit country to country) who smoke cigarettes (and or other smoking products) regularly (which is a definition which may also vary). The data obviously comes from [...] national, Government commissioned surveys since prevalence is highly political, but they may also be private surveys. The wording of the survey in terms of what a regular smoker is would obviously make a difference. The surveys vary from country to country in terms of size of sample and sometimes we need to arbitrate between survey data sources. The other imponderables/variables are whether under-age smokers are included in the survey. Prevalence isn’t necessarily an indicator of the average amount a smoker consumes though when prevalence is high it suggests a smoking culture where per capita consumption is also high.”

<sup>25</sup> Data for 24 EU countries are attached in the appendix.

Figure 7: Total smoking prevalence rates, eight largest volume markets, in per cent, 2000-2010<sup>26</sup>



Source: Euromonitor

### 3.1.1.2 Illicit Trade

In terms of illicit trade, it is estimated that the EU and its Member States lose up to €10 billion in unpaid taxes every year from counterfeit and smuggled tobacco products.<sup>27</sup> Consequently, the fight against counterfeit and smuggled cigarettes is a significant European priority. In addition, counterfeit products are likely to present additional dangers for smokers in terms of their health because these products are not captured by existing regulation (e.g. warning labels, minimum age, etc.).

**Euromonitor provides data on illicit trade of cigarettes and defines this category as non-duty paid cigarettes.**<sup>28</sup> The figure below shows that Eastern European countries in particular exhibit high volumes of illicit trade of cigarettes relative to their size. Price is not the only factor explaining this phenomenon. Euromonitor suggests that while Eastern Europe is the region where tobacco control legislation is having the biggest impact on price, in the form of raised taxes; other factors: such as borders, trade routes, tourism flow, immigration, consumer tastes, culture and tradition also influence illicit cigarette penetration.<sup>29</sup>

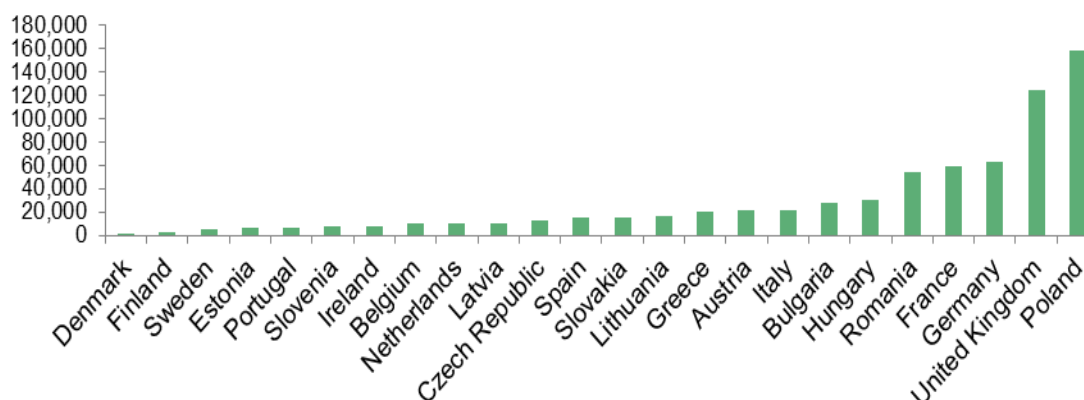
<sup>26</sup> Euromonitor's sources consist of trade sources and national statistics.

<sup>27</sup> Communiqués de press RAPID; "Contraband and counterfeit cigarettes: frequently asked questions." MEMO/10/448, Brussels, 27 September 2010.

<sup>28</sup> By its very nature illicit trade is a market that is difficult to quantify. Euromonitor sources for this include trade press, customs offices, interviews with manufacturers and retailers as well as local knowledge of the market – for example how porous borders are, how high unit prices are, whether a market is a conduit for cigarettes versus actual consumption. Very often illicit trade will be expressed as a proportion of duty paid, legal sales (eg "illicit trade is 20% of duty paid") and is a ballpark figure that is quoted by the industry and one that Euromonitor corroborates via interviews with key industry players.

<sup>29</sup> Euromonitor. Illicit trade in cigarettes part 3 – regional review Europe.

Figure 8: Aggregated volume of illicit trade in EU24 (in million sticks) over entire time period 2000-2010



Source: Euromonitor

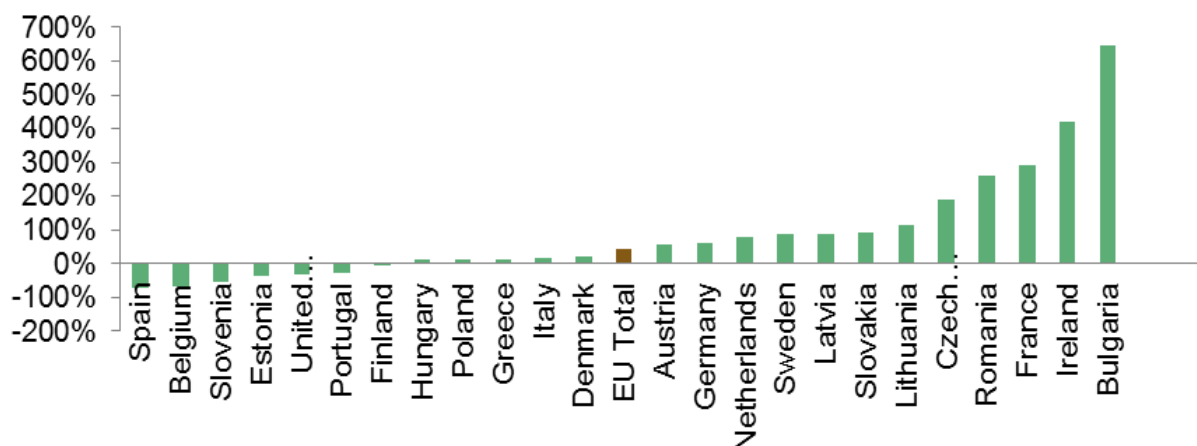
Between 2000 and 2010, the trade of non-duty paid cigarettes increased by 43% across the EU.<sup>30</sup> The overall size of non-duty paid cigarettes grew from 56.5 billion sticks in 2000 to 80.5 billion sticks in 2010. Illicit trade increased in most EU Member States but Spain, Belgium, Slovenia, Estonia, the United Kingdom, Portugal and Finland. These figures are broadly in line with those provided by a recent KPMG report on illicit trade<sup>31</sup>. According to KPMG, the total volume for counterfeit and contraband cigarettes amounted to 64.2 billion cigarettes and the non-domestic (legal) volume accounted for 23.7 billion cigarettes in 2010 across the EU. The discrepancy between the Euromonitor and KPMG figures may be explained by the fact that Euromonitor reports figures for 24 of the 27 Member States.

<sup>30</sup> Data on illicit trade is only available for 24 Member States.

<sup>31</sup> KPMG Project Star 2010 Results. 22 August 2011. Available at:

[http://www.pmi.com/eng/tobacco\\_regulation/illicit\\_trade/documents/Project\\_Star\\_2010\\_Results.pdf](http://www.pmi.com/eng/tobacco_regulation/illicit_trade/documents/Project_Star_2010_Results.pdf) [Accessed January 2012]

Figure 9: Percentage change in illicit trade of cigarettes (in million sticks), 2000-2010



Source: Euromonitor.

Bulgaria experienced the highest percentage change in illicit trade, and constitutes an intriguing case study. The 647% rise between 2000 and 2010 is attributable to a number of factors, including the increase of excise duty on 1 April 2009.<sup>32</sup> Whilst the overall volume of illicit sales steadily increased between 2000 and 2008, from 706.4 million sticks to 3.9 billion sticks, the largest jump coincided with this large excise duty rise, as the change in illicitly-traded cigarettes from 2008 to 2009 was over 2 billion. This can be seen as an example for a strong correlation between price rises, lack of effective enforcement and increases in illegal sales. The purchasing power of Bulgarians has not been increasing as fast as cigarettes taxes.<sup>33</sup>

#### Volume and future trends of illicit trade

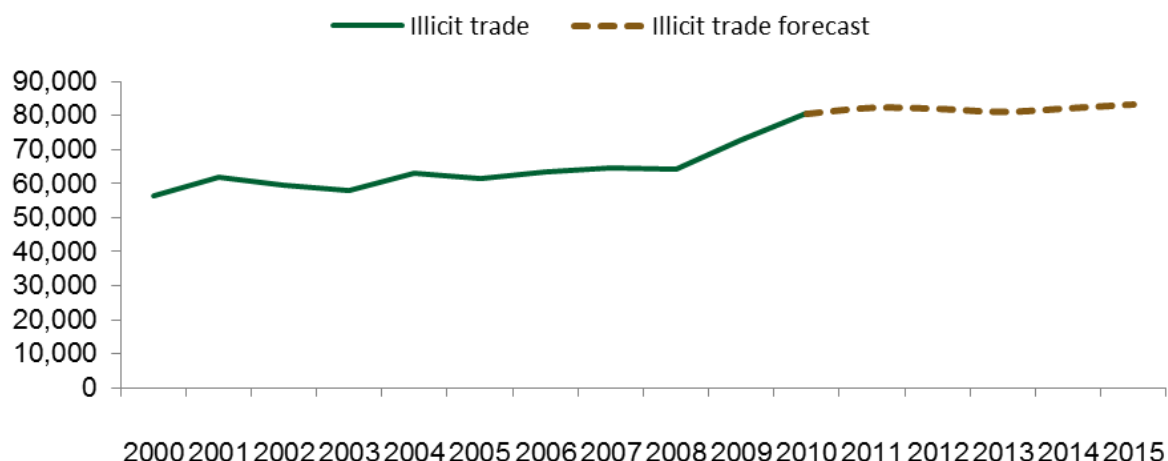
According to Euromonitor forecasts, the overall volume of illicit trade will increase over the coming five years at a relatively low rate (around 1% per year) to reach 83.25 billion sticks by 2015<sup>34</sup>.

<sup>32</sup> Euromonitor. Bulgaria Category Briefing. 17 September 2010.

<sup>33</sup> Euromonitor. Bulgaria Category Briefing. 17 September 2010.

<sup>34</sup> Euromonitor does not elaborate on the reasons for the predicted slowdown in the rise of the illicit trade in cigarettes. Because forecasts are based on a number of predicted factors, such as past trends, predicted legislative developments, future prevalence, etc., a number of factors may contribute to the slowdown.

Figure 10: EU24 Illicit market of cigarettes (in million sticks), 2000-2010, Euromonitor Forecasts 2011-2015

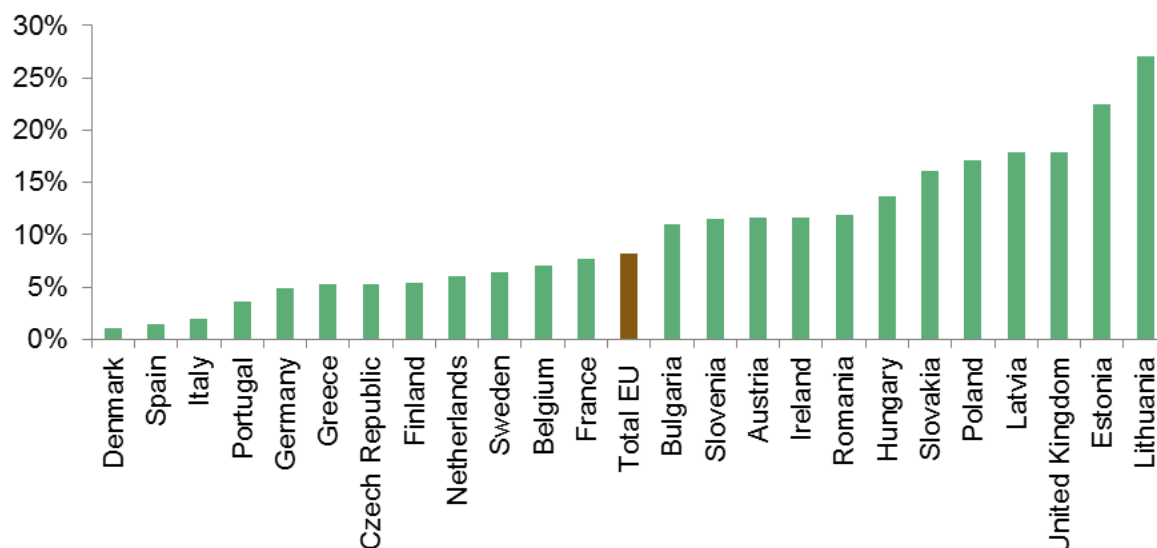


Source: Euromonitor

### Illicit trade as a share of total retail volume

For the EU as a whole, illicit trade in cigarettes over the past year represented 8.25% of total trade. However, there is significant variation across countries with more than one in four cigarettes sold in Lithuania emanating from illicit trade (27.1%) compared with only one per cent of sales in Denmark.

Figure 11: Illicit trade as a percentage of all cigarettes traded over entire period between 2000 and 2010

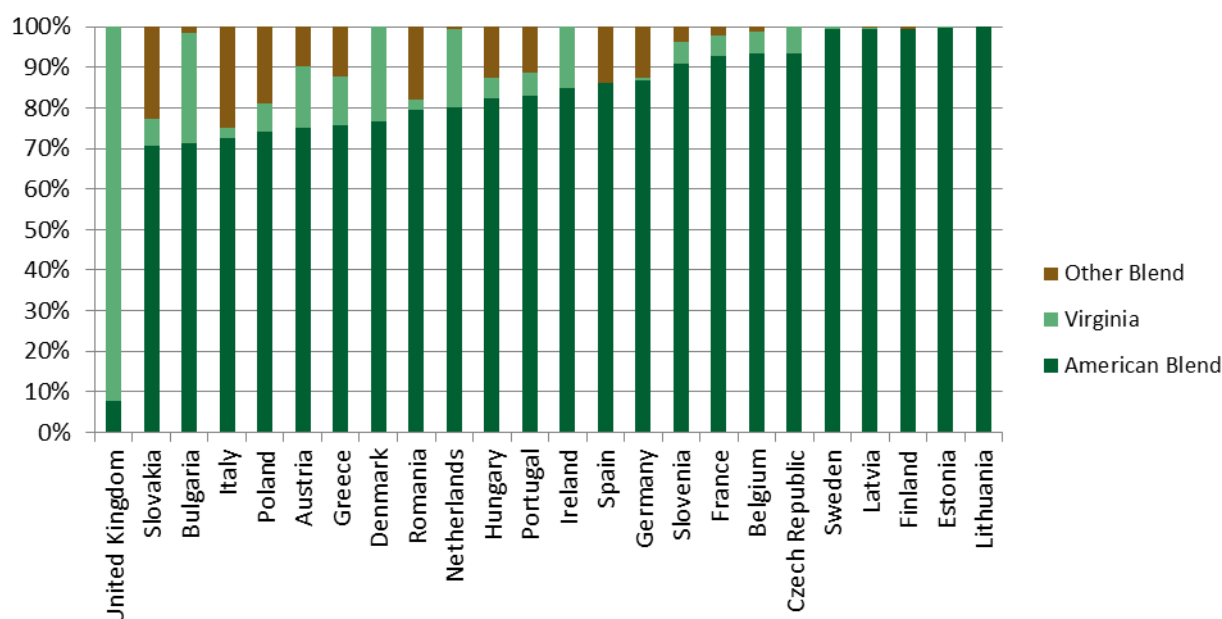


Source: Euromonitor

### 3.1.1.3 Blends

As far as blends are concerned, cigarettes containing the American blend continue to have the biggest share of the market (in volume terms) compared to Virginia and other blends. In 2010, American blend cigarettes accounted for 462.6 billion sticks (76% of the market), Virginia for 72 billion sticks (12%), and other blends for 71.6 billion sticks (12%).<sup>35</sup> According to Euromonitor International, since 2000, blend preferences in all EU markets have remained more or less static with no significant change in blend share seen in any market between 2000 and 2010.

Figure 12: EU24 Cigarettes market size in percentage by blend, 2010<sup>36</sup>



Source: Euromonitor

American Blend cigarettes use a combination of Virginia, Burley and Oriental tobacco, along with added flavours and other ingredients to 'replace the sugars lost during the curing of burley tobacco and to provide the distinctive tobacco flavour and aroma of each cigarette brand'.<sup>37</sup> Virginia cigarettes primarily just consist of Virginia tobacco. This is why, for example, the recent Canadian flavouring ban primarily affected the producers of American blend cigarettes.<sup>38</sup>

Whilst over 90% of all cigarettes sold in the UK are Virginia Blend, all other EU24<sup>39</sup> countries have sales of American Blend cigarettes making up at least 71% of all cigarette sales.

<sup>35</sup> Note that while the overall size of the cigarette market was 608.8 billion sticks in 2010, the sum of cigarettes that account for the three blends is 606.2 billion sticks. This small discrepancy of 2.6 billion sticks could be explained by the lack of data on blend for Cyprus, Luxembourg and Malta.

<sup>36</sup> No data is available for Cyprus, Luxembourg and Malta.

<sup>37</sup> [http://www.pmi.com/eng/our\\_products/pages/about\\_tobacco.aspx](http://www.pmi.com/eng/our_products/pages/about_tobacco.aspx)

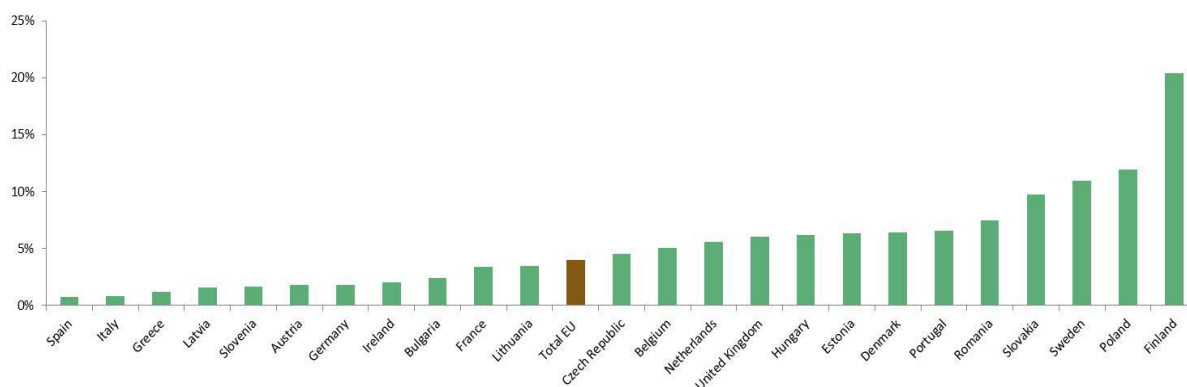
<sup>38</sup> <http://www.tobaccoasia.com/previous-issues/64-articles-q1-10/206-flavor-bans-the-next-nail-in-the-coffin.html>

<sup>39</sup> Excluding Cyprus, Luxembourg and Malta, for which no data are available.

### 3.1.2 Menthol Cigarettes

In general, menthol has a relatively small following in cigarettes, generating four percent of cigarettes sales (by volume) over the past ten years across the EU 24.<sup>40</sup> Finland is the country with the highest sales of menthol cigarettes as a share of all cigarettes sold between 2000 and 2010 (20.42%), which in part has been driven by new female consumers.<sup>41</sup>

Figure 13: Menthol cigarette sales as a percentage of all cigarettes sales over the entire time period 2000-2010



Source: Euromonitor

The menthol share of the total market of cigarettes increased from 3.4% (27.2 billion sticks) in 2000 to 4.6% (27.9 billion sticks) in 2010, which coincided with a total increase of 2.4% in volume of sales. Over the coming five years, the (volume) market share of menthol cigarettes is expected to increase from 4.6% in 2010 to 4.8% in 2015.

According to information provided by the tobacco industry, the market for cigarettes with a characterising flavour in Europe, excluding menthol, is a niche market.<sup>42</sup> There are four or five small independent manufacturers who sell cigarettes with distinctive flavours in Europe.<sup>43</sup> Larger tobacco companies have stated that they are not interested in this market. It is considered that this type of products is for a niche segment of smokers who may smoke distinctive flavoured cigarettes once a week. Were this type of cigarettes is smoked more regularly, the industry estimates the market would not be so small. It is considered that the share for distinctive flavoured cigarettes does not exceed 0.5% of the market in any European country. One brand of cigarette with characterising flavours is marketed in 33 countries around the world (of which around 15 are EU Member States) however its share does not exceed 0.01% of the market in any country where it has a presence.

#### Trends (past and future)

As is the case for cigarettes, in most countries, the menthol cigarettes market has also decreased. However, because of strong sales increases in eight Member States (Finland, Slovenia, Estonia, Czech Republic, United Kingdom, Lithuania, Slovakia and Poland), the overall market size (in terms of millions of sticks) increased by 2.4% between 2000 and 2010, from 27.2 billion sticks to 27.9 billion sticks. This increase has been attributed to the extensive promotional support provided for

<sup>40</sup> No data was available for Cyprus Luxembourg or Malta

<sup>41</sup> Euromonitor. Cigarettes in Finland. Category Briefing, 28 July 2011

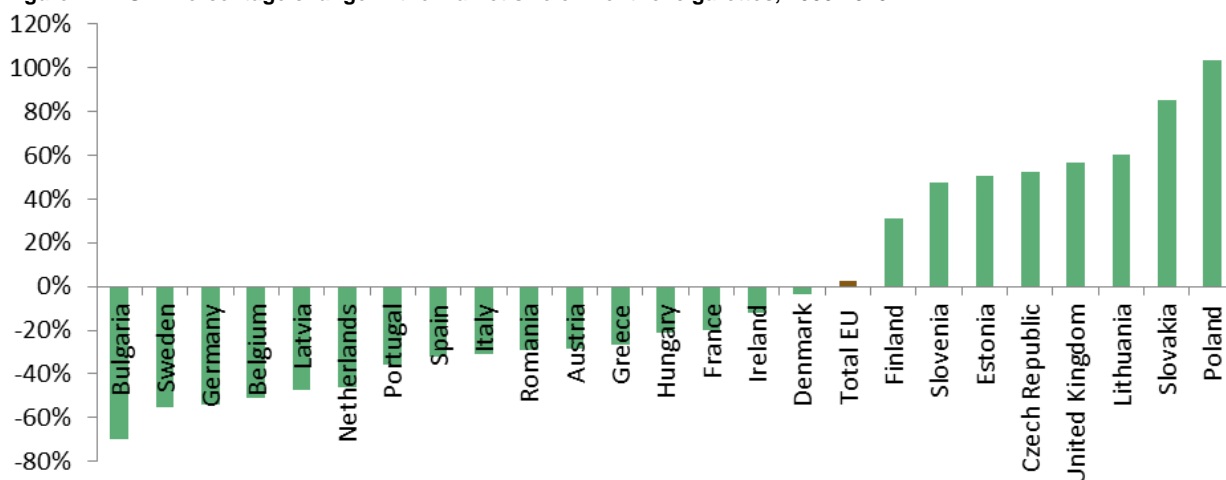
<sup>42</sup> Interviews conducted by Matrix with the tobacco industry (December 2011).

<sup>43</sup> Heupink & Bloemen Tabak and Continental Tobacco Corporation are two known small manufacturers.



such brands, with the rise of popularity of these products among female and young consumers also assessed to have been of importance.<sup>44 45</sup> The largest absolute and relative rise in menthol sales came from Poland (five billion more menthol cigarettes sold, corresponding to a 103% rise in sales).

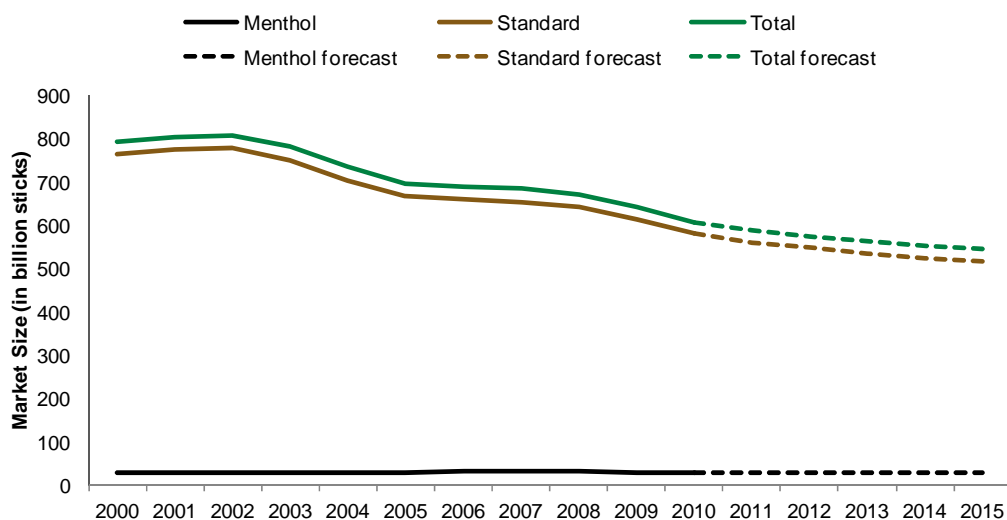
Figure 14: EU24 Percentage change in the market size of menthol cigarettes, 2000-2010



Source: Euromonitor. No data for Cyprus, Luxembourg or Malta.

**The market for menthol cigarettes is expected to be comparatively stable over the next five years, while sales of standard cigarettes are expected to continue to fall.** In volume terms, Euromonitor expects EU24 sales of menthol cigarettes to fall from 27.9 billion sticks in 2010 to 26.2 billion sticks in 2015 (corresponding to a 6% volume reduction), whilst standard (non-menthol) cigarettes sales are predicted to fall from 606 billion sticks in 2010 to 542 billion sticks in 2015 (an 11% reduction). Menthol cigarettes are therefore expected to increase market share over the next five years.

Figure 15: Volume of standard and menthol cigarettes sales across EU 24, (2000-2015)



Source: Euromonitor. No data were available for Cyprus, Luxembourg or Malta

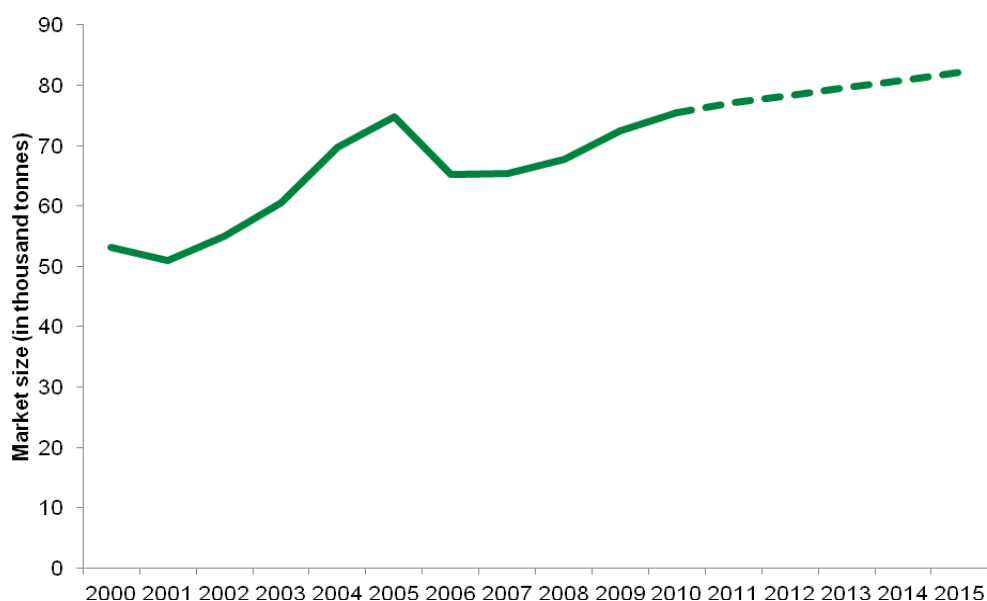
<sup>44</sup> Euromonitor, Trend Watch – Flavoured cigarettes controversy rages on . 23 Apr 2008

<sup>45</sup> The attractiveness of menthol cigarettes to both female and young smokers is discussed in a number of Euromonitor category briefings.

### 3.1.3 Roll-Your-Own Tobacco

The market size of RYO tobacco in 2010 was 75.5 thousand tonnes across the EU. This represents a 42% rise in market size in comparison to 2000, when 53 thousand tonnes of RYO tobacco were sold across the EU. The trend between 2000 and 2010 was characterised by two peaks: in 2005 and 2010. Euromonitor forecasts that this upwards trend will continue up until 2015. It is expected that in 2015, 82 thousand tonnes of RYO tobacco will be sold across the EU.

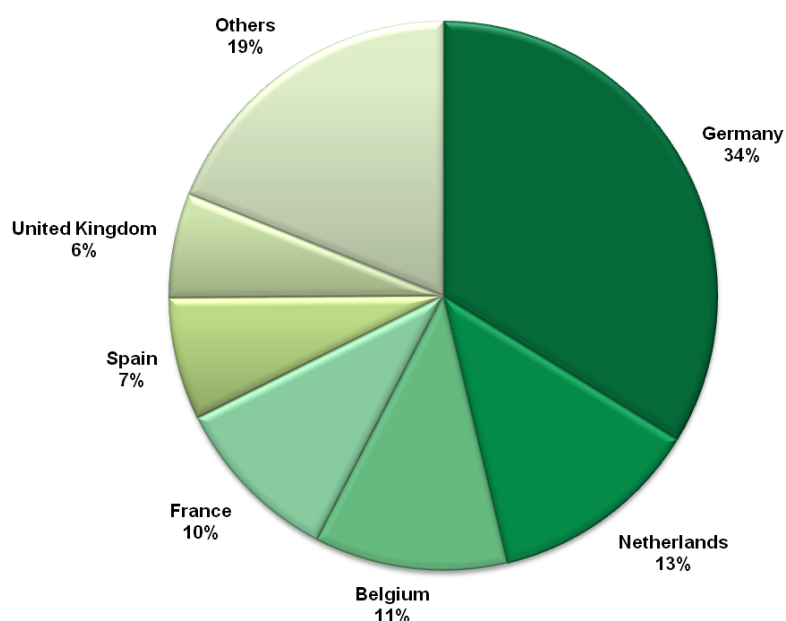
Figure 16: Roll-your-own tobacco market size, EU27, in thousand tonnes, 2000-2010, forecast 2011-2015



Source: Euromonitor

Around a third of the entire EU RYO market is made up of sales in Germany, which comprised 25.5 thousand tonnes in 2010, a 100% increase on the 12.8 thousand tonnes market size in 2000. As Figure 17 shows, the six largest markets make up over 80% of the entire EU RYO market in 2010.

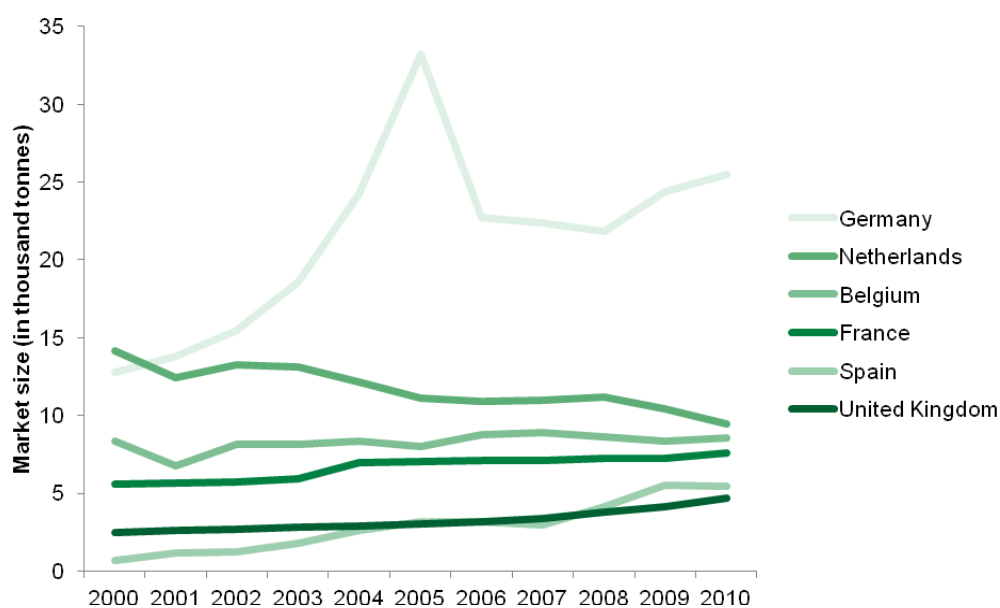
Figure 17: Country components of total EU27 market size in RYO tobacco, per cent, 2010



Source: Euromonitor

Figure 18 reveals that the 2005 peak in RYO tobacco sales has largely been driven by the 2005 peak in German RYO sales. This, itself, coincided with a rise in the popularity of pre-made RYO ‘sticks’ in Germany, which started being taxed more heavily in 2006 (Source: Euromonitor, ‘Smoking Tobacco in Germany’, 5 October 2011). Following this increase in taxation, German RYO sales fell.

Figure 18: RYO Tobacco market size in eight largest markets, in thousand tonnes, 2000-2010



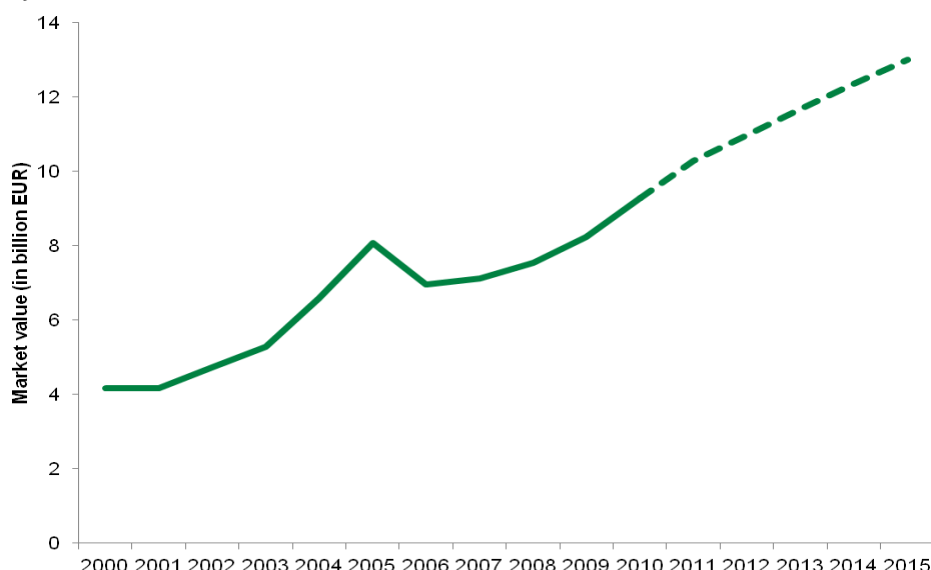
Source: Euromonitor

**This implies that some of the volume reductions in cigarette sales could have been offset by volume increases in RYO tobacco sales.** Euromonitor assumes that 1g of RYO tobacco corresponds to one cigarette. Working with this assumption, the RYO tobacco increase corresponds to an increase of 22.4 billion equivalent cigarettes.<sup>46</sup>

**This increase in RYO consumption is equivalent to 12% of the reduction in cigarette volumes** outlined above<sup>47</sup>. In Germany, where 58.2 billion fewer cigarette sticks were sold in 2010 than in 2000, the German RYO tobacco increase outlined above is equivalent to 22%<sup>48</sup> of the volume reduction. Therefore, whilst cigarette sales reductions have not been offset one-for-one by RYO tobacco sales, it is reasonable to assume that a degree of substitution has happened. This ties in with the note of caution outlined above: falling cigarette sales have most likely been compensated for, among other things, by consumers switching to cheaper self-rolled cigarettes.

The market value of RYO tobacco in 2010 was €9.3 billion, which is 123% larger than the €4.2 billion market value in 2000. This is a steeper increase than in market size over the time period, clearly indicating price rises. Germany, the UK, France, the Netherlands, Belgium and Spain are, in addition to being the six largest markets in volume terms, the six largest markets in value terms.

Figure 19: Roll-your-own tobacco market value, EU27, in billion EUR, 2000-2010



<sup>46</sup> Note that this is an extremely conservative (and easy-to-work-with) assumption: many roll-your-own tobacco packets assume that the user will use around 0.4 to 0.75g of tobacco instead.

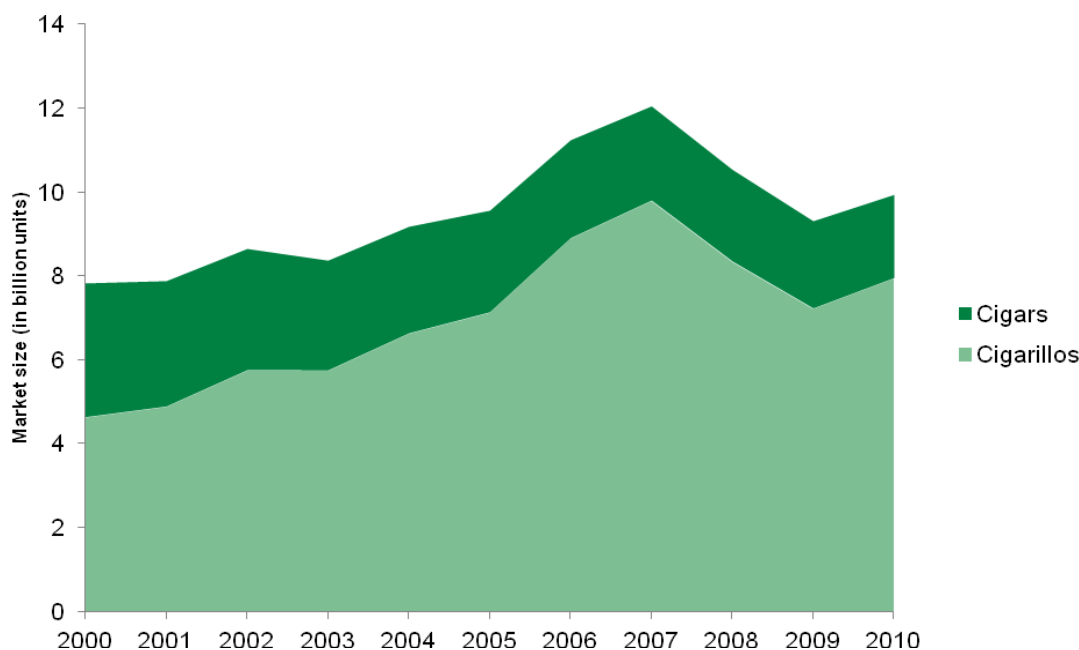
<sup>47</sup> If we alternatively assume that a typical RYO cigarette actually uses half the amount of tobacco (around 0.5g, so within the range of 0.4g and 0.75g), the increase in RYO consumption would be equivalent to 24% of the reduction in cigarette volumes

<sup>48</sup> Or 44% if 0.5g per one cigarette are used.

### 3.1.4 Cigars and Cigarillos

In 2010, 9.92 billion cigars and cigarillos were sold across the EU, of which 20% were cigars (1.98 billion units) and 80% cigarillos (7.94 billion units).<sup>49</sup>

Figure 20: Cigars and cigarillos market size, EU27, in billion units, 2000-2010



Source: Euromonitor

Overall, the market size of cigars and cigarillos increased by 27% between 2000 and 2010 (in 2000, the 7.8 billion cigars and cigarillos were sold). However, absolute cigar sales decreased over the time

<sup>49</sup> Euromonitor (Category Definitions) defines cigars thus: "This category is the aggregation of large, standard and small cigars only. This category excludes cigarillos. Company and brand shares are available at this level for the combined market of large, medium and small cigars, with subsector level splits available only for market sizes (e.g. volume and value sales). NB Euromonitor uses ring gauge to distinguish cigarillos from small cigars. **Large cigars** [are] cigars weighing over ten pounds per thousand and measuring 6.5 inches in length and above. **Standard** (or "regular") cigars weigh over ten pounds per thousand and are less than 6.5 inches in length, with a ring gauge of 41-54 (inclusive). **Small cigars** weigh between three and ten pounds per thousand, less than 6.5 inches, ring gauge of 30-40 (inclusive). **The distinction between small cigars and cigarillos is relatively blurry in the tobacco industry**, and there are many cigarillos marketed as small (or 'little') cigars. To that end, **Euromonitor uses ring gauge to distinguish small cigars from cigarillos**. NB Ring gauge is usually listed under a brand as Length/Ring and is a number describing the circumference of the cigar's cross section and is enumerated in sixty-fourths of an inch (64/64 = 1 inch). So a cigar with a 48 ring gauge (its girth) is 48/64 of an inch, or 3/4 of an inch across." Cigarillos are defined thus: "**Cigarillos are defined as miniature cigars weighing less than 3 grams each, with a ring gauge of <29**. The distinction between small cigars and cigarillos is relatively blurry in the tobacco industry, and there are many cigarillos marketed as small (or 'little') cigars. To that end, Euromonitor uses ring gauge to distinguish cigarillos from small cigars. Cigarillos are considered to be anything of 29 ring gauge and under. Length doesn't matter as much in determining cigarillo vs small cigar as some cigarillos can be quite long. However, 6 inches is the maximum length a cigarillo tends to be. NB Ring gauge is usually listed under a brand as Length/Ring and is a number describing the circumference of the cigar's cross section and is enumerated in sixty-fourths of an inch (64/64 = 1 inch). So a cigar with a 48 ring gauge (its girth) is 48/64 of an inch, or 3/4 of an inch across."

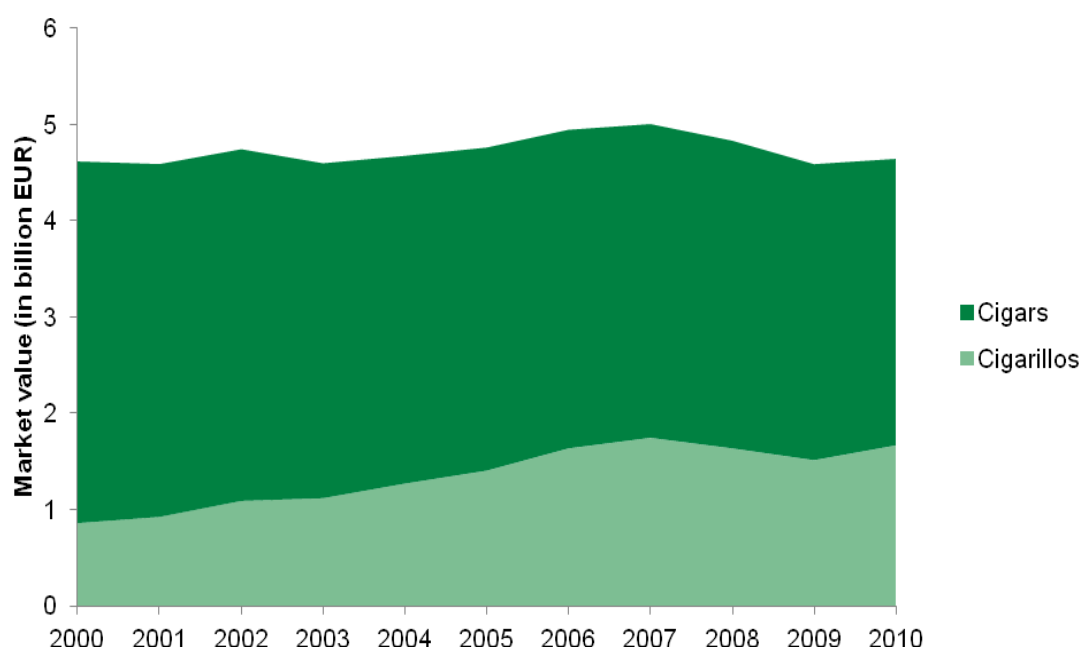
period by 1.2 billion units (a 38% fall), whilst cigarillo sales increased by 3.3 billion units (a 72% increase).<sup>50</sup>

The cigarillos market is largely made up of sales from three countries: 47% of the cigarillos market in 2010 consisted of German sales, whilst French and Spanish sales made up 16% and 14% of total sales, respectively. Conversely, the largest consumer of cigars, over the entire time period and despite large sales reductions between 2000 and 2010, was the United Kingdom. Twenty per cent of all cigars bought across the EU were bought in the UK (412.5 million cigars).

Up until 2015, Euromonitor forecasts that cigar sales will continue to fall and cigarillo sales will continue to increase. Overall, it is forecasted that around 10.6 billion cigars and cigarillos will be sold across the EU in 2015, with 1.75 billion (17%) cigars and 8.8 billion (83%) cigarillos.

The overall market value of cigars and cigarillos sold across the EU in 2010 was €4.65 billion, with cigars constituting 64% of the total market value (€2.98 billion) and cigarillos 36% of the total market value (€1.67 billion). In 2000, the value of the total market was €4.62 billion, i.e. market value increased by 0.6% over the ten years. The relatively constant market value over the time period is to be attributed to the fact that cigars are, on average, more expensive than cigarillos and their reduction in sales has offset the increase in value from more cigarillos being sold. This is demonstrated in

Figure 21: Cigars and cigarillos market value, EU27, in billion EUR, 2000-2010



Source: Euromonitor

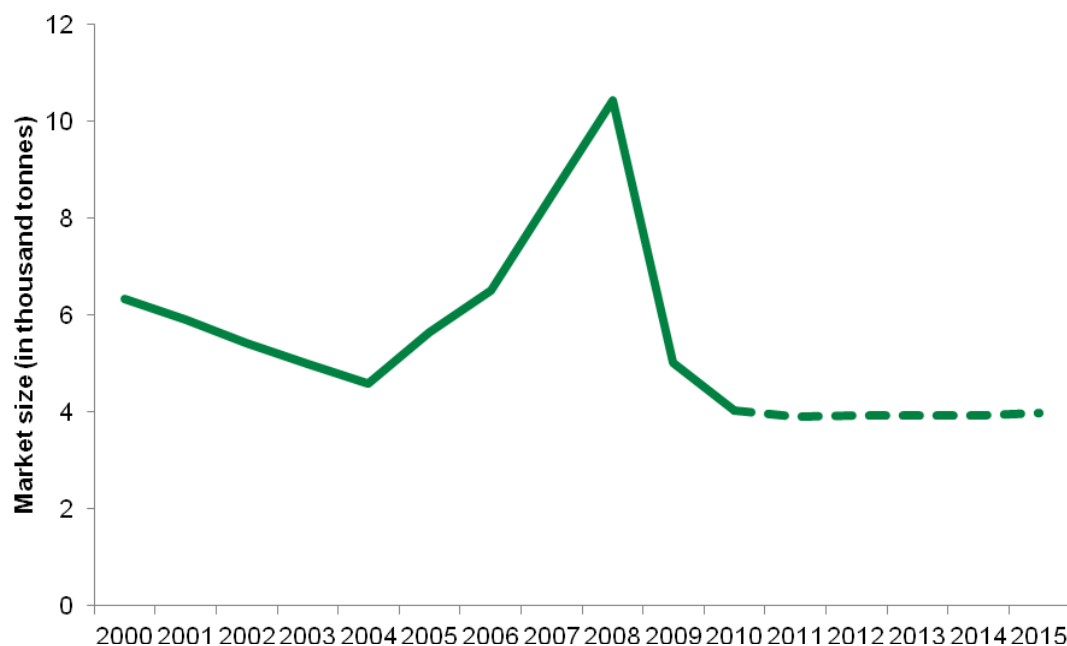
Euromonitor forecasts that this trend will continue with the market value increasing slightly to €5.1 billion by 2015, consisting of 58% cigars and 42% cigarillos.

<sup>50</sup> Much of the cigarillos peak in 2007 was driven by the rise in popularity of eco-cigarillos, which are identical to cigarettes in all ways but the wrapper, enabling them to be classified and taxed as cigarillos, before this tax loophole was closed in most EU countries. In Germany and Hungary, this tax loophole will be closed before 2014. ('Cigars in Germany', Euromonitor Category Briefing, 5 Oct 2011; 'Innovation in the cigar industry – eco cigarillos', Euromonitor Article, 2 Nov 2007).

### 3.1.5 Pipe Tobacco

In 2010, 4.03 thousand tonnes of pipe tobacco were sold across the EU, which represents a 36% reduction in the volume of sales since 2000 (6.33 thousand tonnes). The market size is forecast to remain relatively constant until 2015, dropping only slightly to 3.97 thousand tonnes by 2015.

Figure 22: Pipe tobacco market size, EU27, in million tonnes, 2000-2010, forecast 2011-2015



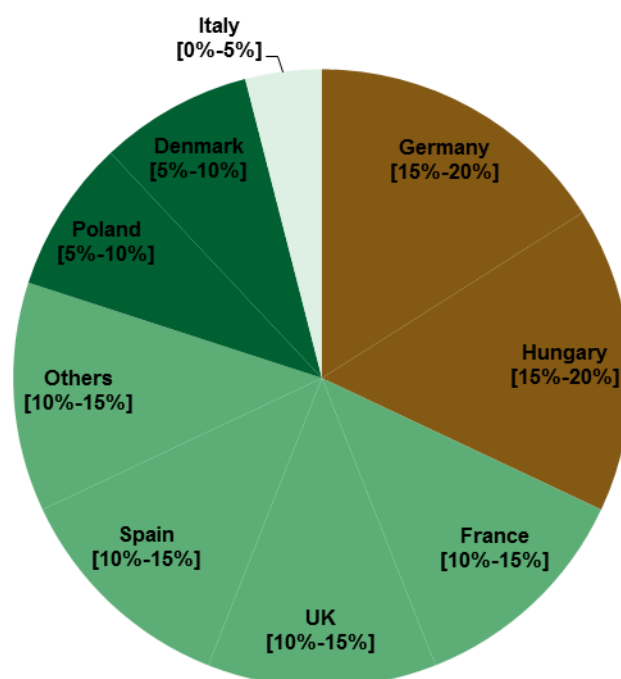
Source: Euromonitor.

Pipe tobacco sales reached an absolute peak in 2008, when the market size was 10.44 thousand tonnes, but rapidly fell thereafter. This peak can largely be explained by the exploitation, and subsequent closing, of tax anomalies in Germany and Poland. As the Polish government imposed higher taxes on RYO tobacco in 2006, pipe tobacco retained a tax advantage and was used by many RYO smokers in hand-rolled cigarettes. As such, pipe tobacco volume sales in Poland rose from 1.5 thousand tonnes in 2005 to 5.7 thousand tonnes in 2008, before the government also raised taxes on pipe tobacco (the market size of pipe tobacco has now fallen down to 0.3 thousand tonnes in Poland).<sup>51</sup> In Germany, RYO smokers started to use cheaper, ‘pseudo’ pipe tobacco in RYO cigarettes, until product classification and taxes were changed in 2008. This explains Germany’s development of volume sales of pipe tobacco from 0.9 thousand tonnes in 2006, to 1.9 thousand tonnes in 2008, to 0.8 thousand tonnes in 2010.<sup>52</sup>

<sup>51</sup> ‘RYO on the rise as pipe tobacco languishes – strategic analysis’ (Euromonitor Article, 8 Nov 2007)

<sup>52</sup> ‘Smoking Tobacco in Germany’ (Euromonitor Category Briefing, 5 Oct 2011)

Figure 23: Country components of total EU27 market size in pipe tobacco, per cent, 2010



Source: Euromonitor.

As the Figure above shows, Germany is the largest pipe tobacco market in the EU (755 tonnes), and the eight largest markets comprise 86% of all EU sales in pipe tobacco.

The market value story for pipe tobacco is not dissimilar from the market size story. The market value of pipe tobacco in 2010 was €480.2 million, which represents a 17% reduction from the 2000 market value of €576.4 million. The market value peaked in 2008 at €965.8 million, and is forecast to rise slightly to €484.7 million in 2015. The underlying drivers of the peak in market value are the strong periods of growth in Germany and Poland, the reasons for which were outlined above.



Figure 24: Pipe tobacco market value, EU27, in million tonnes, 2000-2010, forecast 2011-2015



Source: Euromonitor

### 3.1.6 (Smokeless) Tobacco Products

Smokeless tobacco is the general term used to describe “tobacco products that are utilised without combustion. Smokeless tobacco is used either in the mouth or in the nose.”<sup>53</sup> As such, there are three broad subcategories within smokeless tobacco:

- oral tobacco (moist snuff / snus) ;
- chewing tobacco; and
- nasal tobacco (dry snuff).

The term “snuff” covers both oral tobacco (moist snuff / snus) and nasal tobacco (dry snuff).

According to the Eurobarometer (2009)<sup>54</sup> one-tenth of EU citizens (50 millions) have at least once in their lives tried non-combustible tobacco products such as dry snuff, snus or chewing tobacco. Only 2% (10 million) currently use such products, either daily or occasionally (both 1%). Consumption of smokeless products reflects geographical, social and ethnic specificities. Limited data (see below) on smokeless tobacco products are available from Euromonitor for those countries which have a long tradition in the consumption of this type of tobacco; namely **Denmark** (both chewing tobacco and snus), **Slovenia** (chewing tobacco), **Germany** (dry snuff) and **Sweden** (snus).<sup>55</sup> There are no data available on the STP market in other Member States.

<sup>53</sup> Euromonitor.

<sup>54</sup> [http://ec.europa.eu/public\\_opinion/flash/fl\\_253\\_en.pdf](http://ec.europa.eu/public_opinion/flash/fl_253_en.pdf), page 9.

<sup>55</sup> The sale of most smokeless tobacco is illegal in **Finland**. Only nasal (dry) snuff smokeless tobacco can be sold in Finland, but its usage is minimal. However, importing smokeless tobacco is legal for personal use. Imports from neighbouring Sweden, where smokeless tobacco is legal, are common (Euromonitor. Smokeless tobacco in Finland. Category Briefing. 28 July 2011). Retail volume and value sales of smokeless tobacco remained negligible in **Romania** over the review period. Euromonitor reports that statistics in 2009 showed imports of 120kg of chewing tobacco and snuff with an import value of €7,000, which is

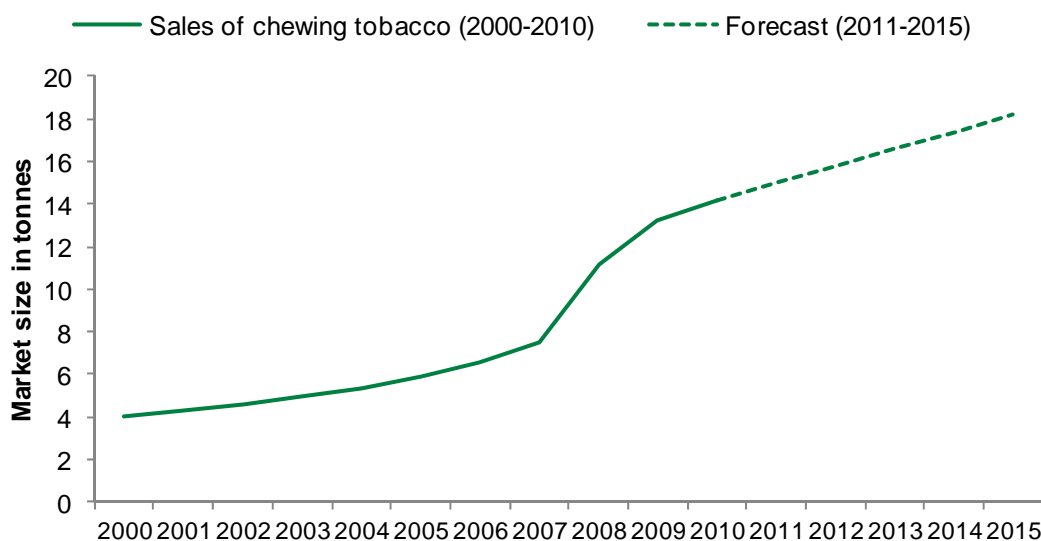
Furthermore, the EU funded SCENIHR group’s report “Health Effects of Smokeless Tobacco Products”<sup>56</sup> states that in the UK “the use of chewing tobacco is largely restricted to members of the Indian, Pakistani and especially Bangladeshi communities, who, for example, in the UK, make up 4.5% of the population, slightly over two million people. Many types of smokeless tobacco are used among the South Asian population. Chewing tobacco is common among the Bengali community. 19% of Bengali men and 26% of Bengali women use chewing tobacco.”

Producing and consuming smokeless tobacco has a long tradition in **Denmark**, whilst smokeless tobacco was introduced in **Slovenia** in the late 1970s. In June 2003, a ban was introduced on snus in Slovenia, in compliance with EU Directive 2001/37/EC, which however did not apply to chewing tobacco. The consumption and distribution of dry snuff and chewing tobacco are legal in **Germany**. Chewing tobacco is not covered in the figures as the category is negligible.<sup>57</sup> Smokeless tobacco has traditionally been popular in **Sweden**, with the only non-negligible sales consisting of Swedish-style snus.<sup>58</sup>

### Chewing Tobacco

Data on chewing tobacco are available for Denmark and Slovenia only.<sup>59</sup> The market size of this product exhibits different patterns in the two countries. In Denmark chewing tobacco remains by far the most popular smokeless tobacco product and sales have been increasing since 2000 (4 tonnes) to reach 14.2 tonnes in 2010, which is a total increase of 255%. This trend is likely to continue and sales are expected to reach 18.2 tonnes by 2015.

Figure 25: Danish chewing tobacco market (in tonnes), 2000-2010, Euromonitor forecast 2011-2015



Source: Euromonitor.

insufficient to change the negligible status of smokeless tobacco (Euromonitor. Smokeless tobacco in Romania. Category Briefing. 14 June 2011). Smokeless tobacco sales in **Slovakia** are negligible (Euromonitor. Smokeless tobacco in Slovakia. Category Briefing. 19 October 2011).

<sup>56</sup> DG Health and Consumer (2007): Health Effects of Smokeless Tobacco Products. Scientific Committee on Emerging and Newly Identified Health Risks, p. 48.

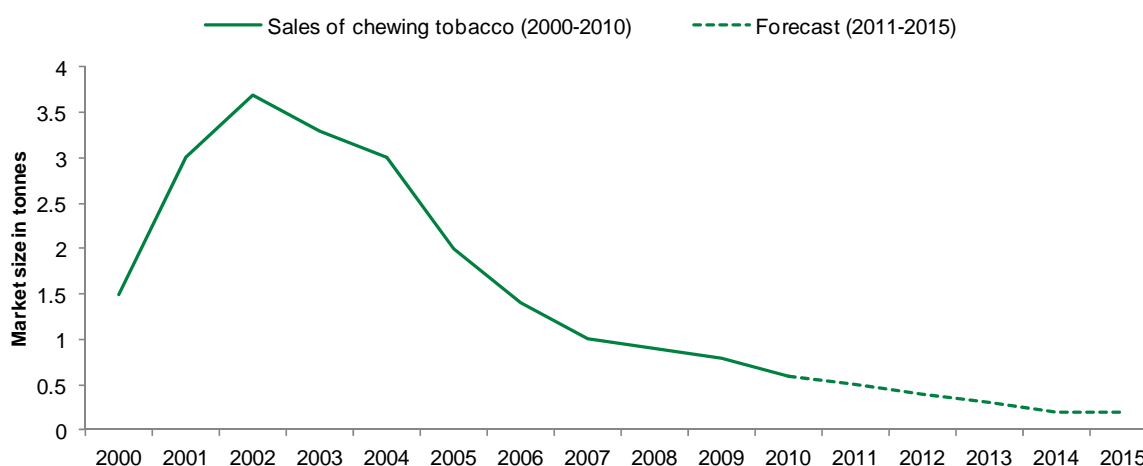
<sup>57</sup> Euromonitor. Smokeless Tobacco in Germany. Category Briefing 5 October 2011.

<sup>58</sup> Euromonitor. Smokeless Tobacco in Sweden. Category Briefing 18 August 2011.

<sup>59</sup> Euromonitor. Smokeless tobacco in Denmark. Category Briefing 28 July 2011.

In **Slovenia**, the market size of chewing tobacco in 2010 was as low as 600 kg. Despite a short-lived increase in sales between 2000 and 2002, the market size of chewing tobacco has been declining. Sales fell from 1.5 tonnes in 2000 to 600kg (0.6 tonnes) in 2010, which is a total fall of 60%. This trend is likely to continue and sales are expected to reach 0.2 tonnes in 2015. The sales increases between 2000 and 2002 are likely attributable to a general rise in popularity of smokeless tobacco in Slovenia since the 1970s, whilst the subsequent fall can be explained by the 2003 ban on oral tobacco (which, although it did not technically affect chewing tobacco, reduced overall popularity of all smokeless tobacco) and societal trends away from chewing tobacco.<sup>60</sup>

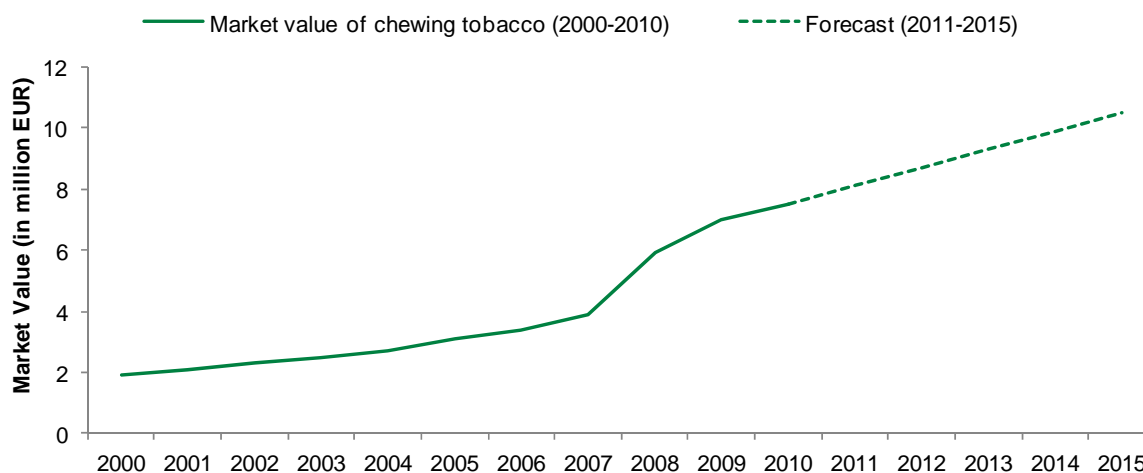
**Figure 26: Slovenian chewing tobacco market (in tonnes), 2000-2010, Euromonitor forecast 2011-2015**



Source: Euromonitor.

The market value of chewing tobacco in Denmark increased by almost 300% over the last ten years, from €1.9 million in 2000 to €7.5 million in 2010. The increase in market value is roughly proportional to the increase in market size which indicates that the price remained stable over time.

**Figure 27: Danish chewing tobacco market value (in million EUR), 2000-2010, Euromonitor Forecast 2011-2015**

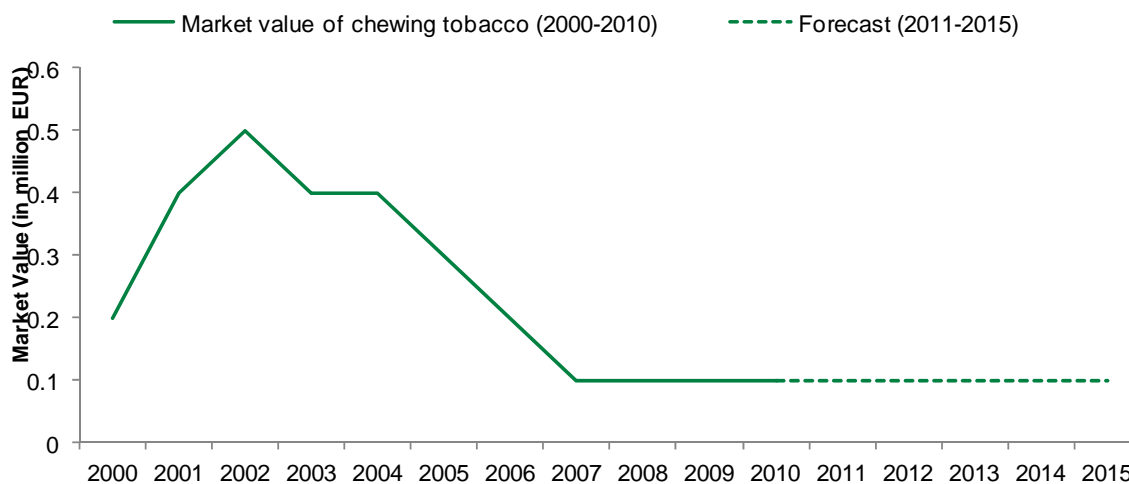


Source: Euromonitor.

<sup>60</sup> 'Smokeless Tobacco in Slovenia' (Euromonitor Category Briefing, 11 Oct 2011)

The market value of chewing tobacco in Slovenia increased from €0.2 million in 2000 to €0.5 million in 2002. It subsequently fell to €0.1 million in 2007, remained stable up until 2010 and is expected to remain stable at around €0.1 million up until 2015. The reasons for this value peak and subsequent fall are outlined above, in the context of the market size.

**Figure 28: Slovenian chewing tobacco market value (in million EUR), 2000-2010, Euromonitor Forecast 2011-2015**

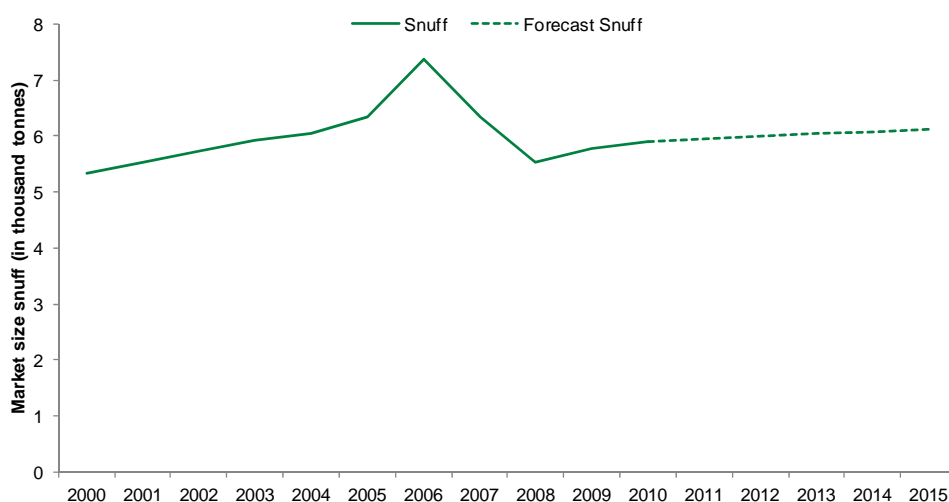


Source: Euromonitor.

**Snuff (snus and dry snuff)**

Snuff is another category of smokeless tobacco that is available in Germany, Sweden and Denmark, encompassing oral tobacco (snus) and nasal tobacco (dry snuff). Snus sales comprise 97% (5.73 thousand tonnes sold in Sweden and Denmark in 2010, of which 5.7 thousand tonnes in Sweden and only 26.5 tonnes in Denmark) of the entire snuff market, with dry snuff comprising 3% of the entire snuff market (170.4 tonnes sold in Germany). Overall, sales of snuff in these three countries increased by 10.4% (from a total of 5.3 thousand tonnes to 5.9 thousand tonnes in 2010) and they are expected to reach 6.1 thousand tonnes in 2015. Sales of snus increased in Denmark (by 502.3%) and Sweden (by 20.5%) but sales of dry snuff decreased in Germany (by 2.2%).

Figure 29: EU Snuff (snus and dry snuff) market size (in thousand tonnes), 2000-2010, Euromonitor forecast 2011-2015

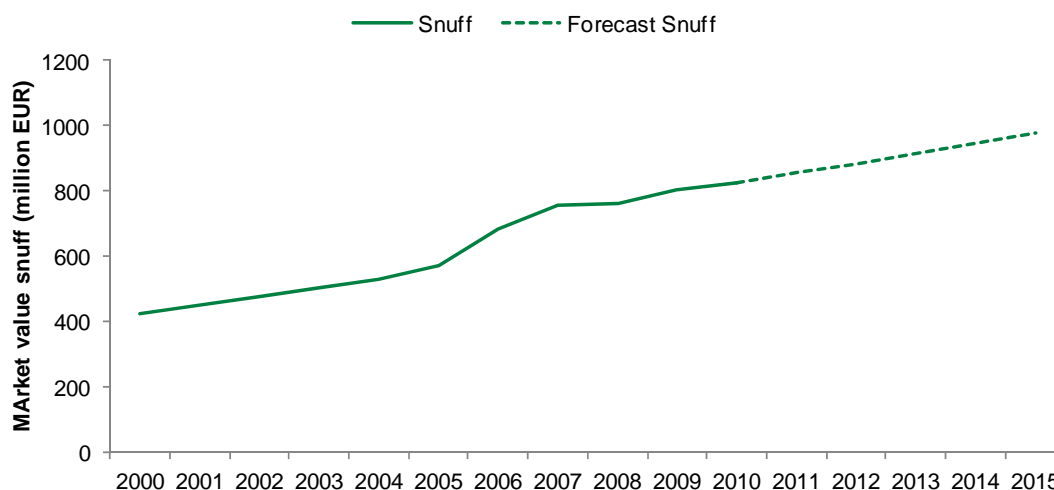


Source: Euromonitor.

The sales peak in 2006 is attributable to the doubling of snus taxation in Sweden in early 2007 – as consumers anticipated rising prices, they “hoarded products at old prices, propelling annual volume growth for the year”.<sup>61</sup>

The market value of snuff in 2010 was €825.6 million. This represented an increase of 94% over ten years (from €425.5 million in 2000 to €825.6 million in 2010). Of this, **the snus market was worth €800 million in 2010 (97%) and the dry snuff market €26.3 million (3%)**

Figure 30: EU Snuff (Snus and Dry Snuff) Market Value (in million EUR), 2000-2010, Euromonitor Forecast 2011-2015



Source: Euromonitor.

### Snus Market Size

Euromonitor estimates that the market size of snus in 2010 was 5.7 thousand tonnes, and the market value just under €800 million (according to non-negligible sales in Denmark and Sweden).

<sup>61</sup> ‘Snus taxation increase spurs end-of-year panic buying’ (Euromonitor Article, 19 Feb 2007)

### Snus Brand Shares

The table below outlines various snus brands' market shares, in volume terms (measured in tonnes), across Denmark and Sweden. The market size of snus is estimated to be 5.7 thousand tonnes across these two countries in 2010, of which 99.5% (5.7 thousand tonnes) is sold in Sweden. The six most popular brands are manufactured by Swedish Match. General is the market leader, with its sales over 1.5 thousand tonnes corresponding to an overall market share of more than 25%.

Table 2: Market volumes (in thousand tonnes) & market shares (in percent) of snus brands, Denmark & Sweden, 2010

| Brand                       | Manufacturer                   | Market volume, thousand tonnes | Market share |
|-----------------------------|--------------------------------|--------------------------------|--------------|
| General                     | Swedish Match AB               | [1.5-2.0]                      | [25%-30%]    |
| Grovsnus                    | Swedish Match AB               | [0.5-1.0]                      | [15%-20%]    |
| Ettan                       | Swedish Match AB               | [0.5-1.0]                      | [10%-15%]    |
| Kronan                      | Swedish Match AB               | [0.5-1.0]                      | [10%-15%]    |
| Catch                       | Swedish Match AB               | [0.5-1.0]                      | [5%-10%]     |
| Göteborgs Rapé              | Swedish Match AB               | [0.1-0.5]                      | [5%-10%]     |
| Granit                      | British American Tobacco Plc   | [0.1-0.5]                      | [5%-10%]     |
| Skruf                       | Imperial Tobacco Group Plc     | [0.1-0.5]                      | [0-5%]       |
| Mocca                       | British American Tobacco Plc   | [0.1-0.5]                      | [0-5%]       |
| LD                          | Japan Tobacco Inc              | [0-0.1]                        | [0-5%]       |
| Lucky Strike                | British American Tobacco Plc   | [0-0.1]                        | [0-5%]       |
| Gustavus                    | Japan Tobacco Inc              | [0-0.1]                        | [0-5%]       |
| Knox                        | Imperial Tobacco Group Plc     | [0-0.1]                        | [0-5%]       |
| Camel                       | Japan Tobacco Inc              | [0-0.1]                        | [0-5%]       |
| Göteborg Snus               | Scandinavian Tobacco Group A/S | [0-0.1]                        | [0-5%]       |
| OffRoad                     | V2 Tobacco A/S                 | [0-0.1]                        | [0-5%]       |
| Bornholmsk snus             | British American Tobacco Plc   | [0-0.1]                        | [0-5%]       |
| Diplomat                    | British American Tobacco Plc   | [0-0.1]                        | [0-5%]       |
| CWO sort snus               | British American Tobacco Plc   | [0-0.1]                        | [0-5%]       |
| RF sort snus med pebermynte | Scandinavian Tobacco Group A/S | [0-0.1]                        | [0-5%]       |
| Others                      | Others                         | [0-0.1]                        | [0-5%]       |

Source: Euromonitor

According to Swedish Match, the total amount of different consumer units available on the market in 2000 was approximately 20, in 2005 around 85 and in 2011 they amount to 174, indicating an increased diversity within the snus market.<sup>62</sup>

In terms of **market value**, Euromonitor estimates that the total market value for snus in 2010 was just under €800 million. In Sweden, snus annually generates taxes of about € 330 million per year, gross profits for the retail sector amounting to € 150 million, and it directly employs more than 2,000 people. According to Swedish Match, the value of snus in the Swedish retail sector amounts to € 660 million.<sup>63</sup>

<sup>62</sup> Swedish Match material sent to Matrix. No data on fragmentation of consumer units beyond overall brand categories are available on Euromonitor.

<sup>63</sup> Swedish Match Presentation for Matrix Insight. Brussels 15 December 2011. The origin of the discrepancy between this figure and the €797.7 million quoted by Euromonitor is not clear.

Interesting commercial activities related to snus take place in the Baltic Sea whereby the ferries operating between Finland and Sweden sell snus. The net profit contribution for the Baltic Sea shipping industry from the snus sale is estimated to have been €25 million in 2009.<sup>64</sup>

Interviews with the snus-producing industry reveal that the ban on snus has an impact on:<sup>65</sup>

- Baltic sea trade, whereby the net profit contribution for the Baltic Sea shipping industry from the snus sale is estimated to €25 million for 2009.
- Swedish food exports, should the ban be lifted Swedish food exports would potentially increase by 10 per cent.
- Retail, taxes and employment in the EU. In Sweden, snus annually generates taxes of about € 330 million per year, gross profits for the retail sector amounting to € 150 million, and employs more than 2,000 people directly. Swedish Match states that snus sales could potentially generate – assuming absence of any substitution with other tobacco products – additional gross profits to the retail sector in the amount of € 3 billion–9 billion per year, generate taxes in the order of €5 billion, and generate employment in the region of 10,000 to 20,000 persons.<sup>66</sup>

### 3.1.7 Electronic Cigarettes

Euromonitor does not offer detailed market data on e-cigarettes. The e-cigarette industry is very new and fragmented and thus difficult to describe and analyse in terms of market size and market value.

When it comes to the demand for e-cigarettes, **ECCA UK estimates that the number of electronic cigarette users in the UK is between 200,000 and 400,000 owners by mid 2011 and that usage seems to have grown at around 500% per year**<sup>67</sup>. Red Kiwi estimates that the number of electronic cigarette users in Germany was 1.2 million in 2011. They use this figure, along with other knowledge about the European market, to extrapolate the total European ownership of electronic cigarettes to around four to five million people.<sup>68</sup> Ayers et al.<sup>69</sup> tracked the rise in popularity of electronic cigarettes by surveying and monitoring online search queries in Australia, Canada, UK and US. The authors found that online popularity of ENDS has surpassed that of snus and Nicotine Replacement Therapies (NRTs) and other smokeless nicotine products. At least the German market has seen a rapid expansion in 2011, which Red Kiwi posits is probably also the case in other European countries.<sup>70</sup>

ECCA UK estimates that the British market has been growing as follows:

- 2006 - a small number of e-cigarette owners
- 2007 - 1,000 owners
- 2008 - 5,000

---

<sup>64</sup> Ibid.

<sup>65</sup> Ibid.

<sup>66</sup> Swedish Retail Institute (HUI) 2009 “Snus sense? The effect of the export restrictions on the Swedish economy” cited in the material provided by Swedish Match, December 2012. It is important to read these figures with a critical eye, as they do not appear to take into account corresponding/any reduction of cigarette market.

<sup>67</sup> <http://www.eccauk.org/index.php/uk-sitrep.html>

<sup>68</sup> Interview with Red Kiwi 16 December 2012

<sup>69</sup> Ayers et al, 2011, cited in RAND, 2011. *Availability, accessibility, usage and regulatory environment for novel and emerging tobacco, nicotine or related products.*

<sup>70</sup> Stakeholder interview with Red Kiwi

- 2009 - 25,000
- 2010 - 125,000
- 2011 – between 200,000 and 400,000 (a threefold increase for 2011, down from 500%, would give us 375,000 owners by year end. Assuming the 500% growth rate, the number of users would increase to 625,000 by the end of 2011, which is considered to be too optimistic)
- 2012 – 750,000? (by doubling the above figure of 375,000)
- 2013 - over 1 million

**Opinion research commissioned by ASH UK in 2010 revealed that 6% of smokers have tried e-cigarettes but do not use them (anymore), while 3% of smokers have tried e-cigarettes and still use them.** This is the equivalent to 300,000 smokers of e-cigarettes as there were about 10 million adult cigarette smokers in Great Britain in 2010, according to the Office for National Statistics. Research commissioned by Red Kiwi in 2011 revealed that 5% of German smokers had tried e-cigarettes but do not use them anymore, whilst 6% have tried them and are using them on a daily basis.<sup>71</sup>

### Market size in value and trends

**There is a great deal of uncertainty around the market value of e-cigarettes. Several alternative estimates of market size have been produced:**

1. Kind Consumer carried out an estimation of sales based on the predicted current number of e-cigarette users against amount of cigarettes smoked in the UK. Using statistics from the aforementioned ASH national survey and another survey conducted by the same organisation estimating the number of smokers and number of cigarettes imported annually, as well as their own company data, estimated UK sales figures for e-cigarettes are:
  - £4m (€4.8m) spent annually on starter kits;
  - £103m (€123m) spent on e-cigarette cartridges annually; and
  - £107m (128m) spent annually on the e-cigarette industry.
2. A second estimate by Kind Consumer assumes the number of e-cigarettes brands in the UK to be approximately 50<sup>72</sup>, with an average turnover of £820,000 (€942,000). The total turnover generated annually from e-cigarettes under this scenario is £40.8 million (**almost €47 million**).<sup>73</sup>
3. Red Kiwi estimated that the current value of the German market is around €100 million, and given their knowledge of other EU markets, the market developments of e-cigarettes Europe-wide and extrapolating across the EU 27, they estimated that the total value of the EU27 e-cigarette market, including devices and refills, is between €400 million and €500 million.<sup>74</sup>
4. ECCA UK has estimated that the current value of the UK market was around £5 million (**€5.7 million**) per year, including units, refills and accessories, at the beginning of 2011<sup>75</sup> with most European national markets being significantly smaller than this.<sup>76</sup>

<sup>71</sup> Stakeholder interview with Red Kiwi and subsequent information provided by Red Kiwi via email.

<sup>72</sup> As mentioned before, this figure seems to be now over 100.

<sup>73</sup> Information provided by Kind Consumer

<sup>74</sup> Interview with Red Kiwi 16 December 2012

<sup>75</sup> <http://www.eccauk.org/index.php/uk-sitrep.html>

<sup>76</sup> The different stakeholders use different knowledge of their own businesses and other businesses when engaging in rough estimates, which is why there may be some disparity in the figures. However, as both estimates expressly talk of units and



5. Finally, KindConsumer analysed the accounts of 11 companies with accounts filed at Companies House. Net profits of these companies never exceeded £160,000 (€184,000), 6 out of the 11 companies that had published their accounts, reported a net loss. Based on this, average operating profit was £11,000 (**€12,600**) a year per company.

**In terms of growth, ECITA assumes the global industry to increase by 30% each month.** Several e-cigarette vendors claim to be the “number one”, making it hard to identify who the actual market leader is. Furthermore, as most products are sold online, market access is very easy and market leadership can change quickly. There is, however, a consensus among stakeholders consulted for this project that *The Electronic Cigarette/Totally Wicked* (UK/US) should be the biggest company in the UK and Europe with a £12 million (€13.8 million) turnover, selling units, refills and accessories, globally. Red Kiwi are, according to their own estimates, the market leader in Germany, even though they do very little cross-border trade.

For smokeless cigarettes, only one brand (SIMILAR) has reported sales of one million packs per annum in 2010 at €5-6 per pack<sup>77</sup>.

### Main players and employment along the supply chain: manufacturers, distributors and routes to market for e-cigarettes

E-cigarettes were introduced in the UK in 2006 and, later that year, in the United States and the rest of Europe. Euromonitor country profiles published in 2011 confirm that e-cigarettes are available at least in these countries: Slovenia, Belgium, Ireland, Slovakia, Estonia, Germany, Italy, United Kingdom, Romania, Czech Republic, Austria, Spain, Finland, Latvia, Bulgaria, Greece, Netherlands. According to a survey carried out by RAND Europe<sup>78</sup>, e-cigarettes are now available in most EU Member States. According to RAND’s research, electronic cigarettes are available for purchase in:

- Tobacco shops (Bulgaria, Czech Republic, Denmark, Estonia, France, Germany, Malta, Netherlands, Poland, Portugal, Spain);
- Food shops (Denmark, Latvia, Poland, Portugal);
- Pharmacies (Czech Republic, France, Ireland, Malta, Netherlands, Spain, United Kingdom);
- Duty free shops (Germany, Latvia, Spain);
- Internet (at least 21 Member States); and
- Other outlets such as airplanes, shopping centres, mobile sales outlets in railway stations, special points of sale (Austria, Bulgaria, Denmark, Ireland, Latvia, Poland, Slovakia, Slovenia, Spain, United Kingdom)<sup>79</sup>.

Smokeless cigarettes (non battery operated) are, according to RAND, less available than e-cigarettes and where they are available they are sold in:

- Tobacco shops (Finland, Spain, Sweden)

---

refills, we do not assume that disparity stems from comparing entirely different markets (i.e. comparing the market for refills with the market for refills and devices).

<sup>77</sup> RAND, 2011. *Availability, accessibility, usage and regulatory environment for novel and emerging tobacco, nicotine or related products.*

<sup>78</sup> RAND, 2011. *Availability, accessibility, usage and regulatory environment for novel and emerging tobacco, nicotine or related products.*

<sup>79</sup> RAND, 2011. *Availability, accessibility, usage and regulatory environment for novel and emerging tobacco, nicotine or related products.*

- Food shops (Sweden)
- Pharmacies (Netherlands, Spain, UK)
- Duty Free Shops (Latvia, Sweden UK)
- Internet (Finland, Germany, Ireland, Latvia, Luxemburg, Spain, Sweden, UK)
- Other outlets such as airplanes<sup>80</sup>, shopping centres, mobile sales outlets in railway stations, special points of sale (Germany, Latvia, Poland, Spain, UK).

**Outlets/brands selling electronic cigarettes and related accessories and paraphernalia offer a wide range of products to e-cigarettes users.** These include batteries in different colours and shapes, mains and USB battery chargers and cases to carry the electronic cigarettes.

According to market research undertaken by Kind Consumer, the main differentiations between brands are:

- Price – the cost of starter kits ranges from £12.50 (€14) - £119 (€137)
- Weight, size, colours
- Accessories- e.g. portable charging case
- Equivalent number of cigarettes per cartridge - range from 6 to 40 equivalent cigarettes per cartridge
- Quality - length of battery life, leakage from cartridge, reliability, efficiency in delivering nicotine to lungs of user
- Product Warranty
- Resemblance to the conventional cigarette - visually, textually, sensorarily and physiologically

In addition to these, vendors are selling other products such as e-cigars, e-pipes and the e-cigarette modifications called “mods” (third generation e-cigarettes) which are quite different in design to cigarette clone models.

**Table 3 - Examples of other e-cigarette brands available in the EU (excluding UK)**

| Country            | Brand       | Website  | Nicotine strengths <sup>81</sup>              | Price starter kits <sup>82</sup> |
|--------------------|-------------|--|---|----------------------------------|
| Belgium and France | Sedansa     | <a href="http://www.sedansa.be">www.sedansa.be</a>                               | Low<br>Medium<br>Regular/Zero<br>High         | €89-€129.95                      |
| France and Germany | BulliSmoker | <a href="http://www.bulli-smoker.com">www.bulli-smoker.com</a>                   | Not specified                                 | Around €125                      |
| France             | Econo'Clope | <a href="http://www.econoclope.com">www.econoclope.com</a>                       | No nicotine<br>Light (6 mg)<br>Medium (11 mg) | €59                              |
| France             | Cigartex    | <a href="http://www.cigartexinternational.com">www.cigartexinternational.com</a> | No nicotine<br>Low                            | €79.00 -€99.00                   |

<sup>80</sup> For example, The Smokeless Cigarette Company (TSCC) holds an exclusive contract with low-cost airline RYANAIR, on which their product SIMILAR is the only smokeless cigarette sold. Information from RAND, 2011. *Availability, accessibility, usage and regulatory environment for novel and emerging tobacco, nicotine or related products.*

<sup>81</sup> These are the different nicotine strengths available on the vendors' websites for cartridges and/or e-liquids

<sup>82</sup> Cigarette clone models, non-disposable, prices include taxes

| Country  | Brand                               | Website  | Nicotine strengths <sup>81</sup>                                   | Price starter kits <sup>82</sup> |
|----------|-------------------------------------|--|--|----------------------------------|
|          |                                     |  | Medium<br>High   |                                  |
| France   | EdSylver                            | <a href="http://www.edsylver.com">www.edsylver.com</a>   | No nicotine (0%)<br>Light (0.6%)<br>Normal (1.0%)<br>Strong (1.6%) | €89.00-€169.00                   |
| Germany  | Red Kiwi                            | <a href="http://www.red-kiwi.de">www.red-kiwi.de</a>   | High (18 mg / ml),<br>Medium (9 mg / ml)<br>None (no nicotine)     | €39,95 <sup>83</sup>             |
| Greece   | Ovale                               | <a href="http://www.ovale.gr">www.ovale.gr</a>   | No nicotine (0 mg / ml)<br>Medium (9 mg / ml)<br>High (16 mg / ml) | €54.99                           |
| Ireland  | Total Cigarettes (TC) <sup>84</sup> | <a href="http://www.totalcigarettes.com">www.totalcigarettes.com</a>                           | High (1.6%),<br>Medium (1.1%) and<br>Low (0.6%)                    | £44.95<br>(€52.40) <sup>85</sup> |
| Italy    | LIFE <sup>86</sup>                  | N/A  | N/A  | N/A                              |
| Slovenia | Kultura <sup>87</sup>               | N/A  | N/A  | N/A                              |
| Spain    | Cigar-clean                         | <a href="http://www.cigar-clean.es">www.cigar-clean.es</a>                                     | No nicotine  | N/A                              |
| Spain    | Cigele                              | <a href="http://www.cigelecigarrilloselectronicos.es">www.cigelecigarrilloselectronicos.es</a> | Zero (0 mg)<br>Low (11 mg)<br>Medium (14mg)<br>High (18mg)         | €44.95 - €99.95                  |

Source: Euromonitor and Matrix Insight

In addition to these e-cigarette brands, other smokeless nicotine products are either under development or already on the market. These include the smokeless cigarette SIMILAR and other “inhalation technologies” such as the product currently being developed by Kind Consumer in cooperation with Nicoventures (BAT).

SIMILAR is a smokeless cigarette developed by The Smokeless Cigarette Company (TSCC), a firm based in Kent (UK) and distributed by a company based in Cyprus to 33 warehouses across Europe. Unlike e-cigarettes, it is not operated by a battery – it is a disposable heat-free, smoke-free device resembling a regular cigarette. In 2010, the company reported annual sales of around one million SIMILAR packs. Sales takes place primarily on airlines and airport shops at a cost of €5-6 per pack. SIMILAR tend to sell most on flights out of Italy and Spain followed by those from the UK, Germany and France<sup>88</sup>.

<sup>83</sup> This price includes 19% VAT and shipping costs

<sup>84</sup> Although the company has distributors across Ireland, it is based in Gibraltar. Euromonitor. Cigarettes in Ireland. Category Briefing .11 Oct 2011.

<sup>85</sup> Price does not specify if taxes are excluded or included (brand based in Gibraltar)

<sup>86</sup> Euromonitor. Tobacco in Italy. Industry Overview. 17 Aug 2011.

<sup>87</sup> Euromonitor. Cigarettes in Slovenia. Category Briefing. 11 October 2011.

<sup>88</sup> RAND, 2011. *Availability, accessibility, usage and regulatory environment for novel and emerging tobacco, nicotine or related products.*

### Development of other new non-tobacco nicotine products by Big Tobacco companies

In what indicates the recent move of big tobacco companies into the development of non-tobacco nicotine products, **British American Tobacco** has recently launched its own subsidiary company "Nicoventures" (<http://www.nicoventures.co.uk>). According to the information on their website, Nicoventures is a newly created start-up company whose objective is to provide a new choice to smokers looking for a safer alternative to cigarettes. They are a stand-alone company within the British American Tobacco Group and will be managed separately from the tobacco business. Their aim is to explore the development of innovative nicotine products that, subject to regulatory approval as a medicinal product, will provide smokers with an alternative to cigarettes and a product they actually want to use.

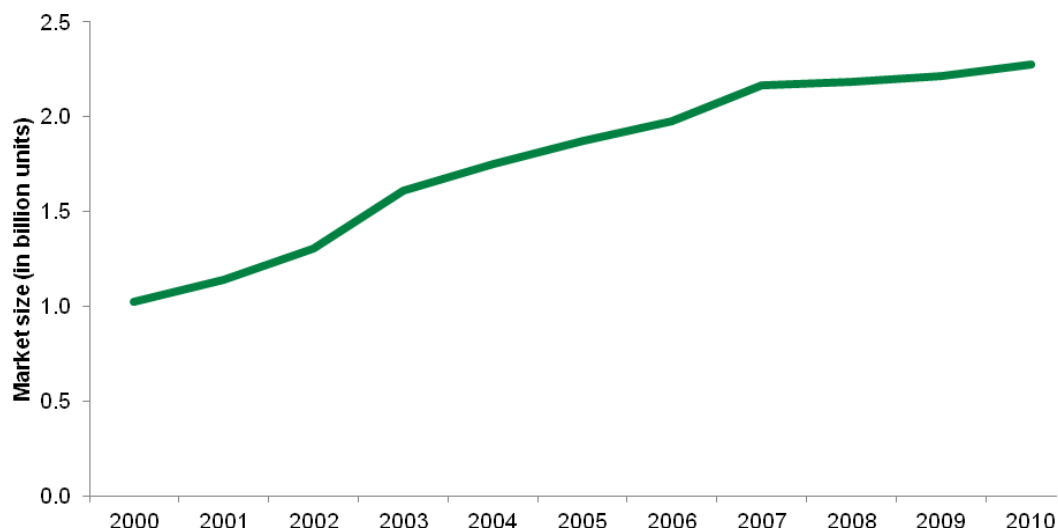
Nicoventures' first partnership is with Kind Consumer (<http://www.kindconsumer.com>), a "healthcare research and development company, focussed on inhalation technologies". According to the information available on their website, Kind "has accelerated the design of this technology into a clean medicinal nicotine product, which will present a genuine choice for the tobacco smokers who are unwilling or unable to give up". Their technology is a non-electronic, breath-operated nicotine delivery system that delivers a reproducible dose of nicotine formulation targeted for lung delivery as an aerosol released from the device via a breath-operated valve. The technology contains no tobacco and does not involve combustion or heat of any nature in its operation.

A similar move into nicotine products has recently been made by **Philip Morris** with the acquisition of a patent for a nicotine aerosol technology.

### 3.1.8 Nicotine Replacement Therapy (NRTs)

The market for NRTs is rapidly growing. 2.3 billion NRTs<sup>89</sup> were sold in the EU 22<sup>90</sup> in 2010. This represents an increase of 122% since 2000, when 1.02 billion NRTs were sold.

Figure 31: Nicotine Replacement Therapy Market Size, EU22, in billion units, 2000-2010



Source: Euromonitor.

The two largest markets, which account for over half of all NRT sales, are the United Kingdom and France in 2010, with 760.5 million (33.5% of the EU market) and 522.9 million (23% of the EU market) units sold.

The market value of NRTs in 2010 was €558.4 million across the EU, which is a 101% increase since 2000's market value of €277 million. The two largest markets in terms of value were the UK and France, at €130 million and €113 million, respectively.

Overall, the total volume of NRTs sold in the EU27 between 2000 and 2010 (19.5 billion) seems minuscule if compared to the total volume of cigarettes sold countries over the same period (7.8 trillion)<sup>91</sup>. If we take into consideration that the number of dissonant smokers, i.e. those currently quitting, reducing or planning to quit or reduce the number of cigarettes smoked, is considered to be rather large, then there is indication that NRTs have only had limited success in appealing to these smokers.<sup>92</sup>

<sup>89</sup> Euromonitor defines NRTs as including nicotine-based gum, inhalators, lozenges, patches, sprays and other nicotine-based products (such as capsules and microtabs). NRTs exclude herbal cigarettes.

<sup>90</sup> EU 27 countries, minus Cyprus, Latvia, Lithuania, Luxembourg and Malta, due to missing/negligible data.

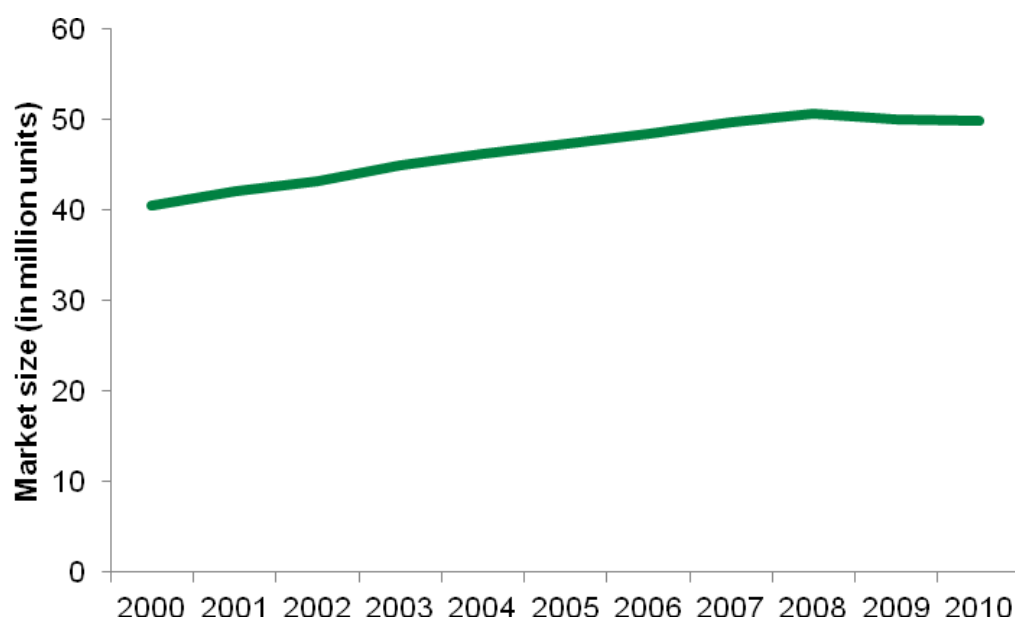
<sup>91</sup> These two figures exclude Cyprus, Latvia, Lithuania, Luxembourg and Malta.

<sup>92</sup> While we do not have EU wide data, Kind Consumer, which is an inhalation technologies company based in the UK, reports that 70% of UK smokers are dissonant smokers.

### 3.1.9 Herbal/traditional smoking cessation aids

**Euromonitor data indicate that herbal/traditional smoking cessation aids<sup>93</sup> were sold in significant amounts in seven Member States over the 2000-2010 period: Belgium, Bulgaria, Germany, Ireland, Italy, Finland and the United Kingdom.** The overall size of this market grew from around 40.6 million units (individual packets) in 2000 to **50 million units in 2010**, an increase of around 23%. The largest market in the EU for herbal/traditional smoking cessation aids in 2010 was the UK, where 23.5 million units were sold.

Figure 32: Herbal cigarettes market size, EU7, in million units, 2000-2010



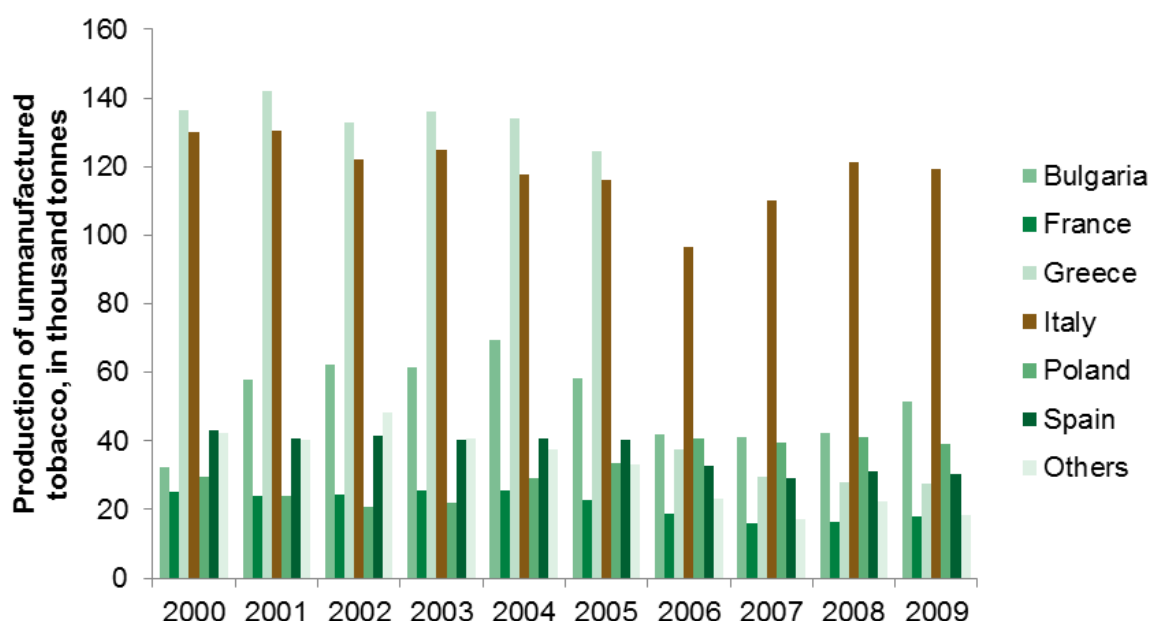
Source: Euromonitor.

<sup>93</sup> Euromonitor does not have a separate 'herbal cigarettes' category. Herbal/traditional smoking cessation aids are defined as "All herbal smoking cessation aids are included. Herbal cigarettes if positioned as a smoking cessation aid are included. Nicotine-based smoking cessation aids are excluded. Examples: Smoke Away, HoneyRose."

### 3.1.10 Tobacco growing

The 27-member EU currently produces around 300 thousand tonnes of raw tobacco annually, according to the FAO. EU production represents 4.1% of worldwide production. Twelve EU Member States produce tobacco.<sup>94</sup> The main producers within the EU are Italy (1.4% worldwide share), Bulgaria (0.7% share), Poland (0.6% share), Spain (0.4%) and Greece (0.4% share)<sup>95</sup>. These countries, together with France, produce over 90% of the total EU production of unmanufactured tobacco. Italy alone grew 119 thousand tonnes of tobacco in 2009.

Figure 33: Production of unmanufactured tobacco, EU27, by country, in thousand tonnes, 2000-2009



Source: FAOSTAT

Between 2000 and 2009, the total production of unmanufactured tobacco in the EU decreased by 31%, from 438.7 thousand tonnes annually to 303.8 thousand tonnes annually. Production decreased in most Member States that produce tobacco, except in Poland, Hungary and Bulgaria, according to the FAO.

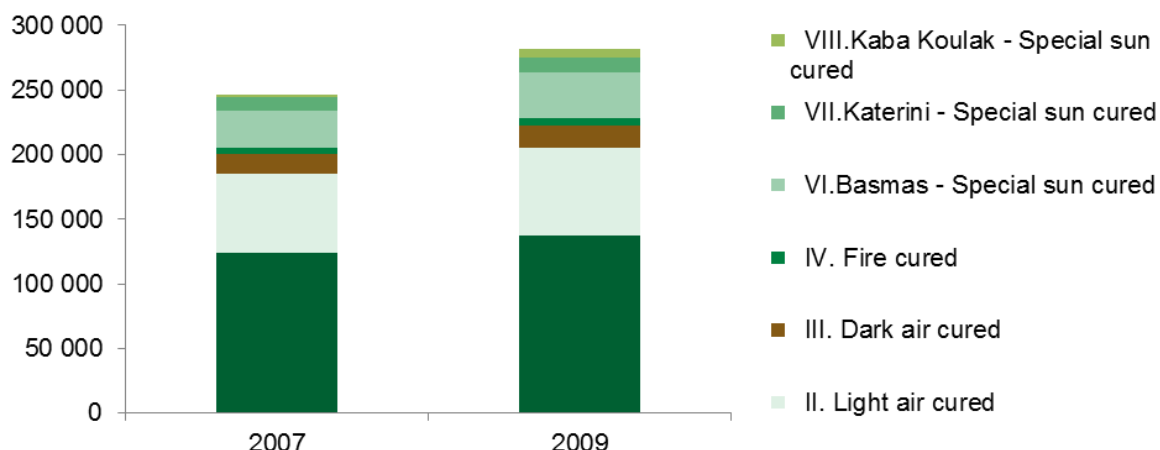
Within this general downward trend in tobacco production (which seems to have been reversed in the 2007-2009 period), there were various different developments by tobacco variety<sup>96</sup>.

<sup>94</sup> Note that there is conflicting data from different sources on this. According to Eurostat, Cyprus no longer produces tobacco (and only did briefly, in very small amounts, in 2003, 2004 and 2005. According to the FAO, Cyprus has been producing small amounts of tobacco across all eleven years between 2000 and 2010. By both accounts, Austria and Slovakia lost all their tobacco production by 2010. According to the sources, there are thus either twelve or thirteen tobacco-producing countries.

<sup>95</sup> Nomisma (2010): "The cultivation of tobacco in the European Union and the impact deriving from the changes in Directive 2001/37/EC. Analyses of socio-economic impact." Bologna.

<sup>96</sup> Note that small discrepancies between overall production values in years between production data above and production by variety data here stems from the usage of different sources: FAO for aggregated data (due to available data dating back to 2000) and DG AGRI data for variety information.

Figure 34: Production of raw tobacco, by type, EU27, 2007 & 2009



Source: DG AGRI

The comparison periods of 2007 and 2009 offer limited scope for a robust establishment of long-term trends<sup>97</sup>, but they do provide a picture of what the most prevalent forms of tobacco grown in the EU are. The data show a similar slight increase to that depicted in FAO data<sup>98</sup> from 2007 and 2009, rebounding following the large fall between 2005 and 2006. Flue-cured tobacco (Virginia tobacco) is the most popular form of tobacco grown in the EU, with 137 thousand tonnes produced in 2009, followed by light air cured (68.7 thousand tonnes). Light air cured tobacco is alternatively called Burley tobacco<sup>99</sup>. Oriental tobacco is alternatively called sun-cured tobacco.<sup>100</sup>

### Agricultural land

**In 2009, 118,190 hectares were devoted to tobacco farming within the EU**, which is a reduction from 191,207 (-38%) in 2000. Because there were 84,328 tobacco farmers (of which over half reside in Bulgaria) in 2009<sup>101</sup>, this implies that each tobacco farm consisted of 1.403 ha, on average, across the EU.

<sup>97</sup> Reliable variety data predating 2007 were not available for EU27, because Bulgaria, a major producer, only joined the EU in 2007.

<sup>98</sup> (cf. above footnote for explanation of discrepancies).

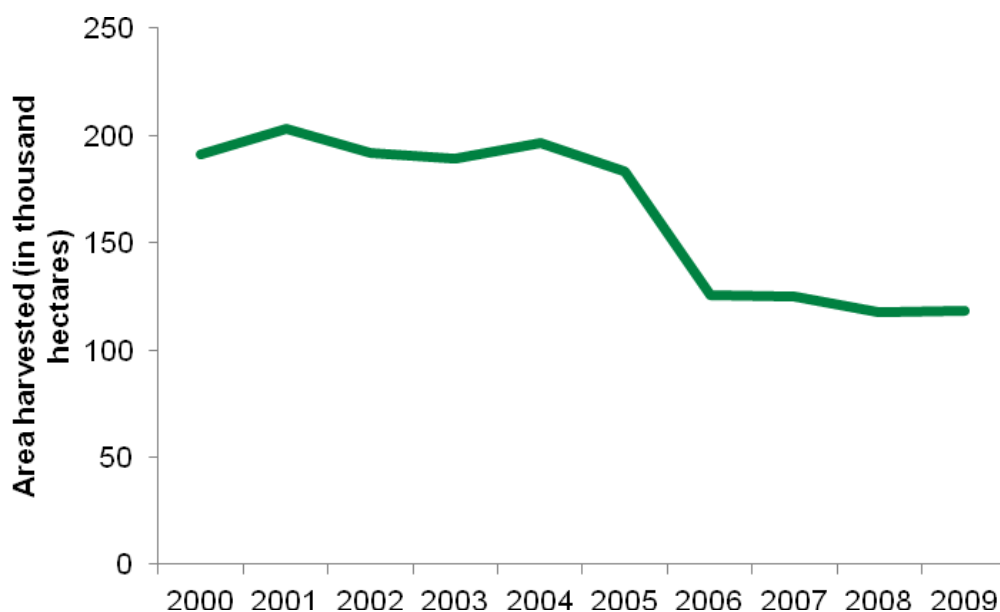
<sup>99</sup> [http://www.bat.com/group/sites/uk\\_\\_3mnfen.nsf/vwPagesWebLive/DO6S8J5Y?opendocument&SKN=1](http://www.bat.com/group/sites/uk__3mnfen.nsf/vwPagesWebLive/DO6S8J5Y?opendocument&SKN=1)

<sup>100</sup> [http://www.pmi.com/en\\_cz/our\\_products/pages/about\\_tobacco.aspx](http://www.pmi.com/en_cz/our_products/pages/about_tobacco.aspx)

<sup>101</sup> Nomisma (2010).



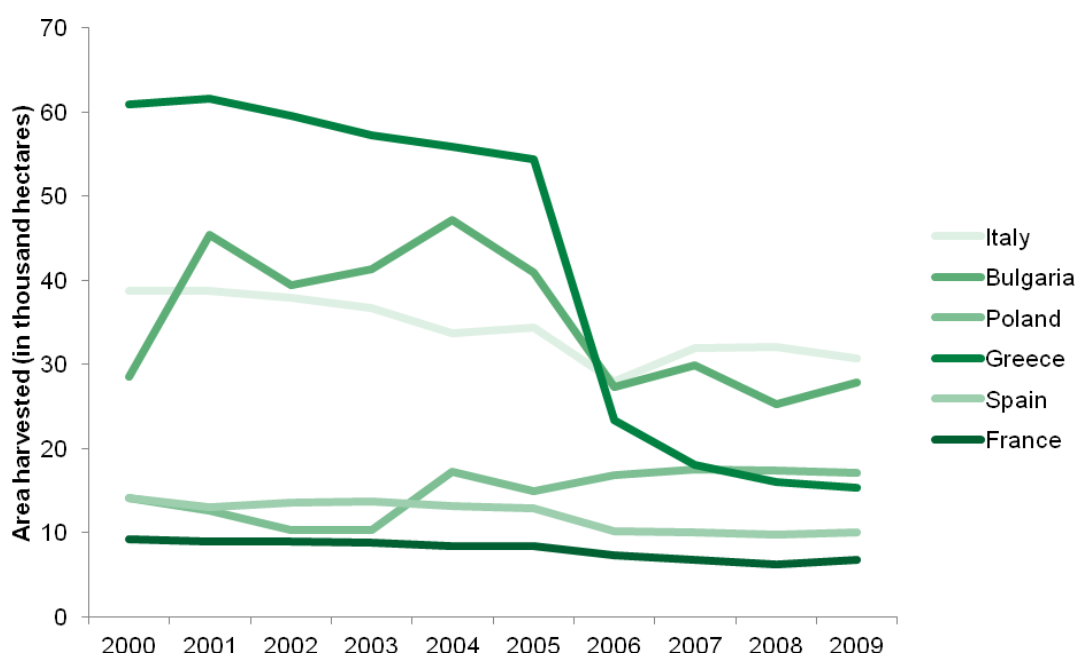
Figure 35: Area devoted to tobacco farming, EU27, in thousand hectares, 2000-2009



Source: FAOSTAT.

Italy and Bulgaria devote the most land to tobacco farming, with around 30,000 hectares and 27,000 hectares in 2010, respectively (together, Italy and Bulgaria make up 50% of all EU land devoted to growing tobacco). There was significant cross-country variation in how the area harvested for tobacco changed. As Figure 36 shows, the most significant trend was that of the large reduction of Greek tobacco farming, from 61 thousand hectares in 2000 to just over 15 thousand hectares in 2010.

Figure 36: Area devoted to tobacco farming, six largest tobacco-producing countries, in thousand hectares, 2000-2009



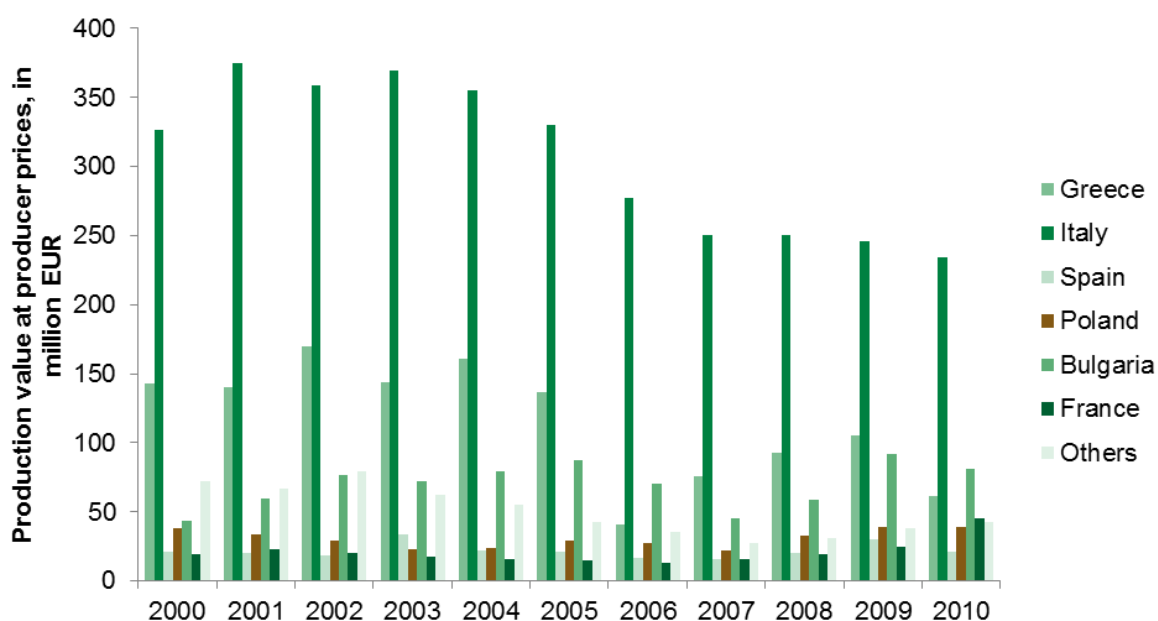
Source: FAOSTAT

Some regions are specialised in growing Burley, Oriental or dark varieties. This is the case in Bulgaria (all regions producing tobacco), the South of Poland (Lubelskie, Lodzkie, Mazowieckie, Podlaskie), the North of Greece (Macedonia and Thrace), Italy (Tuscany, Campania, Lazio), but also in France, in Romania and in Spain. In most of these regions tobacco growers are small farmers and tobacco represents their main revenue. Virginia is mainly grown in Italy (Veneto, Umbria), in Spain (Extremadura), in the South of Poland, Bulgaria, France and Hungary.<sup>102</sup>

### Gross turnover

The production value of raw tobacco harvested across the EU in 2010 was €526 million. This represents a 21% reduction in comparison to the €663.6 million production value in 2000, in line with the previously mentioned falls in production quantity and area harvested. Here, again, the most significant trend is that of Greek production value falling from €143.3 million in 2000 to €61.8 million in 2010. At the same time, Bulgarian production value almost doubled, from €43.74 million in 2000 to €81.04 million in 2010.

Figure 37: Production value of raw tobacco at producer prices, EU27, in million EUR, 2000-2010



Source: Eurostat, Economic accounts for agriculture - values at current prices

<sup>102</sup> Material from DG AGRI, January 2012.

### Employment

The Nomisma (2010) report shows that the overall number of farmers involved in tobacco remained relatively stable between 2007 and 2009. The highest percentage of tobacco growers is in Bulgaria, where in 2009 they were more than 50% of total EU growers.

**Table 4: Tobacco farms in EU 27 producers countries**<sup>103</sup>

| Member State | 2009            |                  | 2008            |                  | 2007            |                  |
|--------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|
|              | Tobacco Farmers | First Processors | Tobacco Farmers | First Processors | Tobacco Farmers | First Processors |
| Bulgaria     | 42412           | 44               | 37000           | 44               | 36718           | 42               |
| Greece       | 14340           | 4                | 14909           | 5                | 14701           | 5                |
| Poland       | 14291           | 6                | 14388           | 6                | 14377           | 6                |
| Italy        | 6538            | 22               | 6758            | 23               | 7360            | 26               |
| Spain        | 2503            | 4                | 2547            | 3                | 3341            | 3                |
| France       | 2277            | 1                | 2482            | 1                | 2751            | 1                |
| Hungary      | 1164            | 2                | 1240            | 2                | 1268            | 2                |
| Germany      | 305             | 2                | 328             | 2                | 359             | 2                |
| Romania      | 152             | 5                | 205             | 3                | 381             | 1                |
| Portugal     | 174             | 4                | 180             |                  | 102             |                  |
| Belgium      | 72              | 5                | 88              | 8                | 90              | 8                |
| Slovakia     | 0               | 1                | 61              | 1                | 61              | 1                |

Source: Nomisma (2010).

<sup>103</sup> The first processing step is where raw tobacco leaves are graded into qualities.

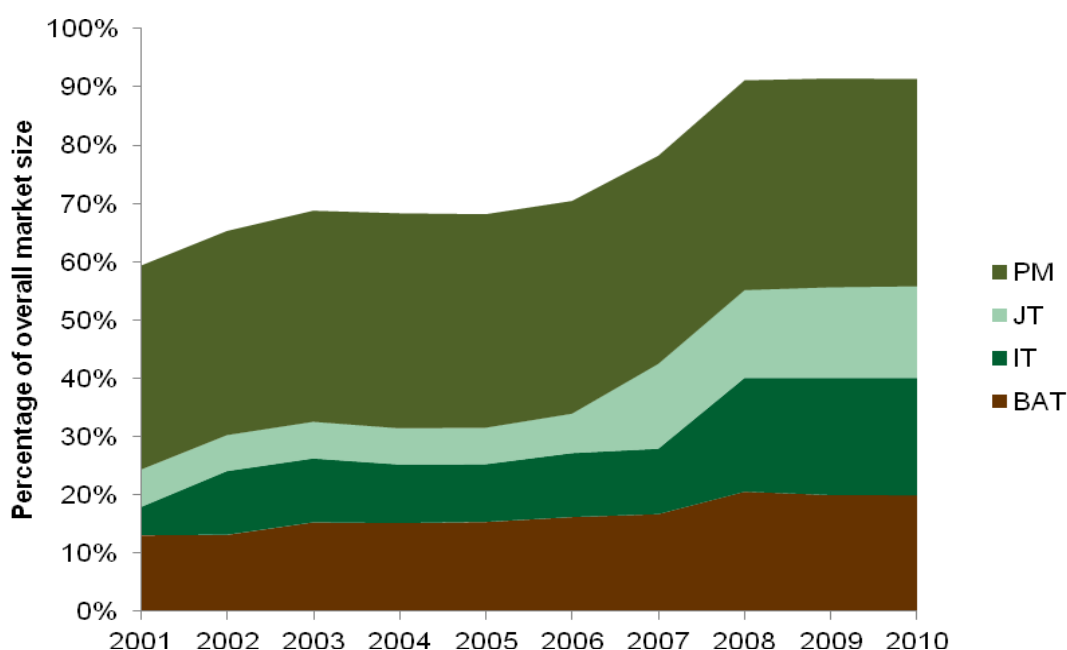
### 3.1.11 Manufacturing

#### 3.1.11.1 Cigarettes<sup>104</sup>

There are a number of players providing cigarettes for the European market including:<sup>105</sup> **companies with an EU27 market share above 2%**<sup>106</sup> (British American Tobacco (BAT), Imperial Tobacco (IT), Japan Tobacco (JT) and Philip Morris International (PMI)<sup>107</sup>), **companies with an EU27 market share between 0.5% and 2%** (Bulgartabac Holding Group, Karelia Tobacco Co Inc), and **companies with an EU27 market share below 0.5%** (Ari Grupa dd, China National Tobacco Corp, Continental Tobacco Group, Dubek Ltd, Heintz van Landewyck Sarl, King's Tobacco AD, Pöschl Tabak GmbH & Co KG, SEKAP SA, Sinorama Industry SRL, Slance Stara Zagora Tabak AD, Zaklady Tytoniowe w Lublinie SA, Continental Tobacco Group, European Tobacco, Randelco Tobacco Company, Raquel Ltd.)

Currently, the European cigarette market is largely dominated by four large multinational companies: British American Tobacco (BAT), Imperial Tobacco (IT), Japan Tobacco (JT) and Philip Morris International (PMI).<sup>108</sup> As Figure 38 outlines, the EU market share (in terms of volume) of the 'Big Four' tobacco companies increased from around 60% in 2001 to around 90% in 2010. This was caused by a combination of organic sales expansion and acquisitions.

Figure 38: EU27 market (in volume terms) share of 'Big Four' tobacco companies, 2001-2010



Source: Euromonitor

<sup>104</sup> A list of tobacco companies worldwide is provided by tobacco.org at [http://www.tobacco.org/Resources/tob\\_indy.html](http://www.tobacco.org/Resources/tob_indy.html).

<sup>105</sup> This list was compiled from Euromonitor as well as from data provided by DG SANCO.

<sup>106</sup> In 2010, according to Euromonitor. In volume terms.

<sup>107</sup> These are known as the Big Four.

<sup>108</sup> These are known as the Big Four.

Particularly prominent examples of how BAT, IT, JTI and PMI increased their market share from around 60% to around 90% in just ten years include JTI acquisition of the Gallaher Group in 2007<sup>109</sup>, IT takeover of Reemtsma Cigarettenfabriken GmbH in 2002<sup>110</sup>, IT acquisition of Altadis in 2007<sup>111</sup> and BAT takeover of the cigarette and snus operations of the Scandinavian Tobacco Company in 2008.<sup>112</sup> These break dates are clearly visible in the graph as sudden jumps in market shares. A 2007 Euromonitor report states that PMI, on the other hand, was “disinclined to consolidate its number one global market share by acquisition at the present time”.<sup>113</sup>

### 3.1.11.2 Roll-Your-Own Tobacco

According to Euromonitor, the RYO tobacco market is more fragmented than the cigarettes market. More producers have significant market shares in individual countries, or in more than one country, and whilst the largest four companies operate across most countries, their role is less dominant than in the cigarettes market.

Table 5: RYO tobacco producers & EU market share

| Producer  | EU Market Share (2010) |
|---|------------------------|
| Imperial Tobacco Group Plc                            | [30%-35%]              |
| British American Tobacco Plc                          | [20%-25%]              |
| Philip Morris International Inc                       | [5%-10%]               |
| Japan Tobacco Inc                                     | [5%-10%]               |
| Gryson NV   | [0-5%]                 |
| Pöschl Tabak GmbH & Co KG                             | [0-5%]                 |
| Heintz van Landewyck Sarl                             | [0-5%]                 |
| Scandinavian Tobacco Group A/S                        | [0-5%]                 |
| Continental Tobacco Group                             | [0-5%]                 |
| Orion Czernek Jerzy                                   | [0-5%]                 |
| Reynolds American Inc                                 | [0-5%]                 |
| Zakłady Tytoniowe w Lublinie SA                       | [0-5%]                 |
| Dubek Ltd   | [0-5%]                 |
| Tobacco Trading International Sp zoo                  | [0-5%]                 |
| Planta Tabak-Manufaktur Dr Manfred Obermann GmbH & Co | [0-5%]                 |
| Mac Baren Tobacco Co A/S                              | [0-5%]                 |
| Tabaqueira SA - Empresa Industrial de Tabacos SA      | [0-5%]                 |
| Biggelaar Tabak BV                                    | [0-5%]                 |
| Promotorzy Sp zoo                                     | [0-5%]                 |
| Heupink & Bloemen Tabak BV                            | [0-5%]                 |
| Karelia Tobacco Co Inc                                | [0-5%]                 |
| Luxor Sp zoo  | [0-5%]                 |
| Von Eicken GmbH, Joh Wilh                             | [0-5%]                 |
| SEKAP SA  | [0-5%]                 |

Source: Euromonitor

<sup>109</sup> <http://www.nytimes.com/2007/04/18/business/worldbusiness/18iht-tobacco.1.5332040.html>.

<sup>110</sup> <http://www.guardian.co.uk/business/2002/mar/08/smoking>.

<sup>111</sup> <http://www.telegraph.co.uk/finance/markets/2812343/Imperial-secures-Altadis-with-11bn-bid.html>.

<sup>112</sup> [http://www.forbes.com/2008/02/28/british-american-update-markets-equity-ll\\_0228markets30.html](http://www.forbes.com/2008/02/28/british-american-update-markets-equity-ll_0228markets30.html).

<sup>113</sup> ‘Consolidation endgame in sight – but is there one more big throw of the dice?’, Euromonitor, 14 August 2007.

### 3.1.11.3 Cigars and Cigarillos

Table 6 displays the main players in the combined cigars and cigarillos market, according to million units sold. The market is more fragmented than the cigarette market, with only two players reaching a market share above 10%: Arnold André Cigars GmbH & Co KG and Imperial Tobacco Group Plc.

**Table 6: Main players in the cigars & cigarillos market**

| Producer                             | Market Share (2010) |
|--------------------------------------|---------------------|
| Arnold André Cigars GmbH & Co KG     | [10%-15%]           |
| Imperial Tobacco Group Plc           | [10%-15%]           |
| Scandinavian Tobacco Group A/S       | [5%-10%]            |
| Agio Cigars                          | [5%-10%]            |
| The Burger Group                     | [5%-10%]            |
| Swedish Match AB                     | [0-5%]              |
| Philip Morris International Inc      | [0-5%]              |
| Japan Tobacco Inc                    | [0-5%]              |
| British American Tobacco Plc         | [0-5%]              |
| J Cortes Cigars NV                   | [0-5%]              |
| Villiger Söhne AG                    | [0-5%]              |
| Cía Canariense                       | [0-5%]              |
| Manifatture Sigaro Toscano Srl       | [0-5%]              |
| Corporación Habanos SA               | [0-5%]              |
| Verellen Cigars                      | [0-5%]              |
| Davidoff & Cie, Genève               | [0-5%]              |
| Swisher International Group Inc      | [0-5%]              |
| Sigarenfabriek de Olifant            | [0-5%]              |
| Fuente & Newman Cigars Inc           | [0-5%]              |
| Tobacco Trading International Sp zoo | [0-5%]              |
| Tabak-Invest as                      | [0-5%]              |
| DelfiDealing                         | [0-5%]              |
| Von Eicken GmbH, Joh Wilh            | [0-5%]              |
| FCiC Mercury Sp zoo                  | [0-5%]              |
| Heintz van Landewyck Sarl            | [0-5%]              |
| Nicarao Cigars                       | [0-5%]              |

Source: Euromonitor

### Tobacco Industry Profits and Industry Consolidation

**Falling cigarette sales have not resulted in a substantial reduction in profit margins for tobacco products companies in all countries.**<sup>114,115</sup> As the below graph shows, EBIDTA (earnings before interest, depreciation, taxes and amortisation) profit margins were actually slightly higher in France and in the UK in 2010 than in 2000. Simultaneously, however, Italian companies have seen a profit margin reduction from 9% in 2001 to just above 1% in 2010, whilst German companies have

<sup>114</sup> Data available only for Germany, France, Italy and the United Kingdom

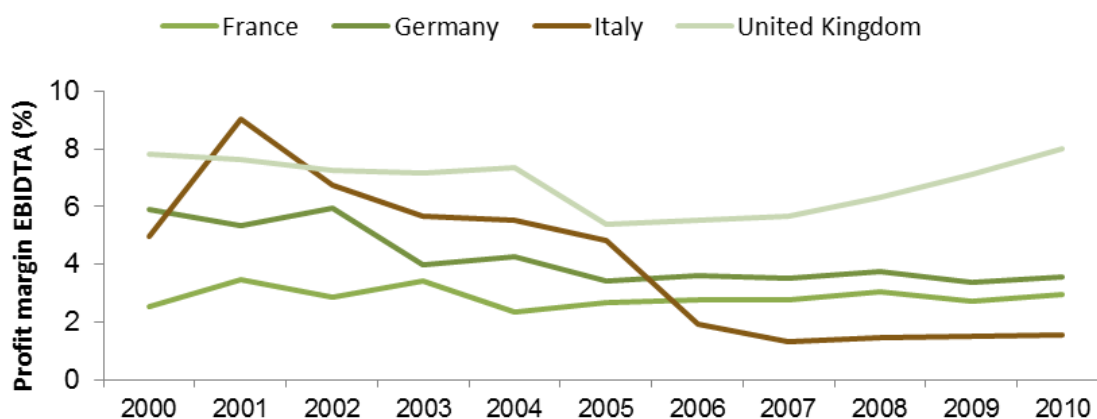
<sup>115</sup> The 'tobacco products industry' or 'tobacco industry' is defined in this section as the manufacturing of cigarettes, cigars, small cigars, cheroots, pipe tobacco, chewing tobacco, snuff and other tobacco (Source: Euromonitor Industrial Database). This excludes the growing and initial processing of tobacco leaves.

seen a reduction from 6% to 4%. Whilst absolute profits have fallen in the UK, Germany and Italy, profits (in current prices) have risen from €279 million in France in 2000 to €388 million in 2010.

**It should be kept in mind that these are, in relation to other sectors and weighed against tobacco sectors in other countries, relatively lower profit margins.** The profit margin of US tobacco products companies has remained consistently above 25% since 2000, has fallen from around 40% in Russia in 2000 to a still sizeable 24% in 2010 and was around 18% in Japan in 2010. As snapshot comparisons, profit margins of spirits companies in France, Germany, Italy and the UK were between 8% and 21% in 2010, whilst profit margins of malt liquor (encompassing beer, ale, porter, stout and malt) companies were between 6% and 17% EU countries was less profitable than many other domestic and international sectors.

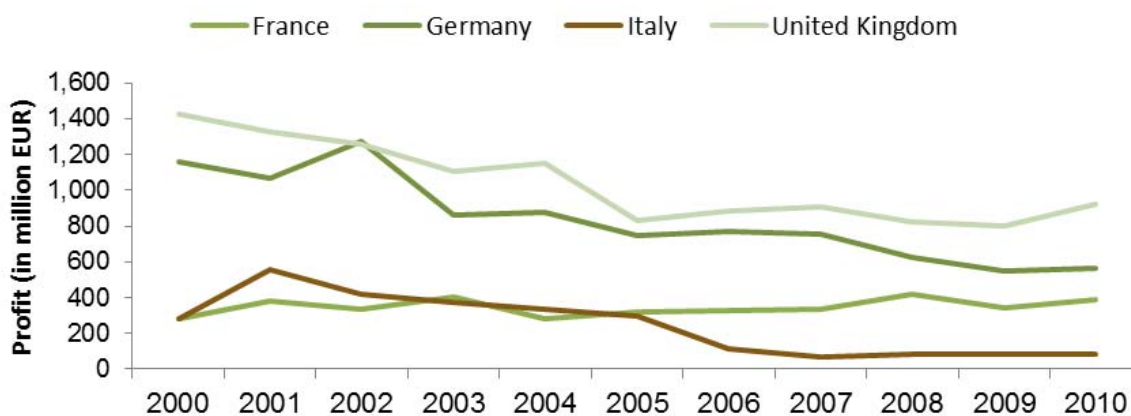
**There does not seem to be a direct connection between cigarette sales and profit margins.** Germany and France had a larger sales volume reduction than average, whilst Italy and the UK saw a smaller sales volume reduction than average (see cigarettes market size, above). The French rise in tobacco profits coincided with a (larger than the EU average) 34% fall in the volume of cigarettes sold in France, and could be explained by both a resistance to the squeezing of profit margins despite rising taxes *and* strong growth in the volume of RYO tobacco (+36%) and cigarillos (+10%) sales. Thus, for the many countries for which detailed profit data are not obtainable, it is important to bear in mind that falls in cigarette sales are not necessarily directly related to a reduction in relative, or even absolute, profits, as consumers substitute towards other tobacco products, firms are able to maintain profit margins through their substantial market power, selling more premium brands or through shifting and streamlining production.

Figure 39: Tobacco products profit margins (in per cent), 2000-2010



Source: Euromonitor.

Figure 40: Tobacco products absolute profits (in million EUR), 2000-2010



Source: Euromonitor.

**The fact that falls in cigarette sales have not always led to drops in profit implies that there are other important industry developments.** Figure 38, above, depicted the market shares of the 'Big Four' tobacco companies (in cigarettes, not tobacco products in general) between 2000 and 2010. This highlighted the intense process of consolidation which has recently occurred in the European tobacco industry.



### 3.1.11.4 Smokeless tobacco

The market leader in snuff, by a large margin, is Swedish Match, with a market share across Denmark, Germany and Sweden of almost 83%. Three of the four largest companies are present in the snuff market (BAT, IT and JTI), whilst PMI has a joint venture with Swedish Match outside of Scandinavia and the United States<sup>116</sup>. In Belgium ‘Sefaco’ produces ‘Makla’, a type of oral tobacco.<sup>117</sup> The market leader in chewing tobacco, present in two EU countries, is House of Oliver Twist, with a market share of more than 80%.

**Table 7: Main players in the chewing tobacco and snuff market**

| Category                  | Producer                       | Market Share (2010) |
|---------------------------|--------------------------------|---------------------|
| Chewing Tobacco (SI & DK) | House of Oliver Twist A/S      | [80%-85%]           |
|                           | Scandinavian Tobacco Group A/S | [15%-20%]           |
|                           | Swedish Match AB               | [0%-5%]             |
| Snuff (DK, DE, SE)        | Swedish Match AB               | [80%-85%]           |
|                           | British American Tobacco Plc   | [5%-10%]            |
|                           | Pöschel Tabak GmbH & Co KG     | [0%-5%]             |
|                           | Imperial Tobacco Group Plc     | [0%-5%]             |
|                           | Japan Tobacco Inc              | [0%-5%]             |
|                           | Bernard Schnupftabak GmbH      | [0%-5%]             |
|                           | Scandinavian Tobacco Group A/S | [0%-5%]             |

Source: Euromonitor

### 3.1.11.5 Electronic Cigarettes

**The European e-cigarette market is mainly composed of distributors rather than producers and dominated by small companies.** Desk research and stakeholder consultation revealed that at least two e-cigarette vendors – Intellicig and Totally Wicked – have more than 15 employees. Red Kiwi has specified that it has recently rapidly increased the number of its employees, and now directly employs 30 people, with all other German manufacturers probably employing fewer people<sup>118</sup>. One e-liquid vendor – Decadent Vapours – has 10 staff, with all other vendors most likely having a maximum of seven employees. Desk research and stakeholder consultation revealed that there are at least 100 brands of e-cigarettes in Europe and most of the companies are based in the UK. Initial research of company profiles for the British outlets on the Nexis database, has shown that these companies tend to be quite new (2006 is the oldest, but most have been registered in the 2009, 2010, and 2011), they are all small companies and are registered under many different UK SIC Codes, e.g. “Other business activities not elsewhere classified”, “Other non-store retail sale”, “Wholesale of other machinery for use in industry, trade and navigation”, or “Other computer related activities”. Consultation with Red Kiwi revealed that the forerunner in e-cigarette trade was the UK in early-2006, with the German market slowly getting started in late 2006 and other EU countries starting soon afterwards.<sup>119</sup>

<sup>116</sup> <http://www.swedishmatch.com/en/Media/Pressreleases/Press-releases/2009/wedish-atck-and-hilip-orris-nternational-announce-global-joint-venture-to-commercialize-smokefree-tobacco-products1/>

<sup>117</sup> Swedish Match material sent to Matrix.

<sup>118</sup> Stakeholder interview with Red Kiwi

<sup>119</sup> Stakeholder interview with Red Kiwi

**Most first and second generation e-cigarettes are produced by manufacturers located in the Shenzhen region in China.** According to Stelda and market research carried out by Kind Consumer, Joye Technology (between 101 and 500 employees), JSB (800 employees), Langjietong Electronic (between 101-200 employees), Smoore Technology (400 employees), Kanger, Boge and Feel Life Bioscience International (this one based in Hong Kong and employing 300 workers) are large manufacturers of electronic cigarettes.

### 3.1.12 Retail

#### 3.1.12.1 Tobacco Products

Whilst the general trend in tobacco sales<sup>120</sup> has been one of reduction, the distributional channels through which tobacco has been sold have changed only slightly over the same time period. The nine categories<sup>121</sup> displayed below have all shown steady declines over the time period, bar discounters, which in 2010 sold more tobacco than they did in 2000. Supermarkets and hypermarkets have also seen a smaller decline in tobacco sales than other channels, for example vending or bar-tobacconists.

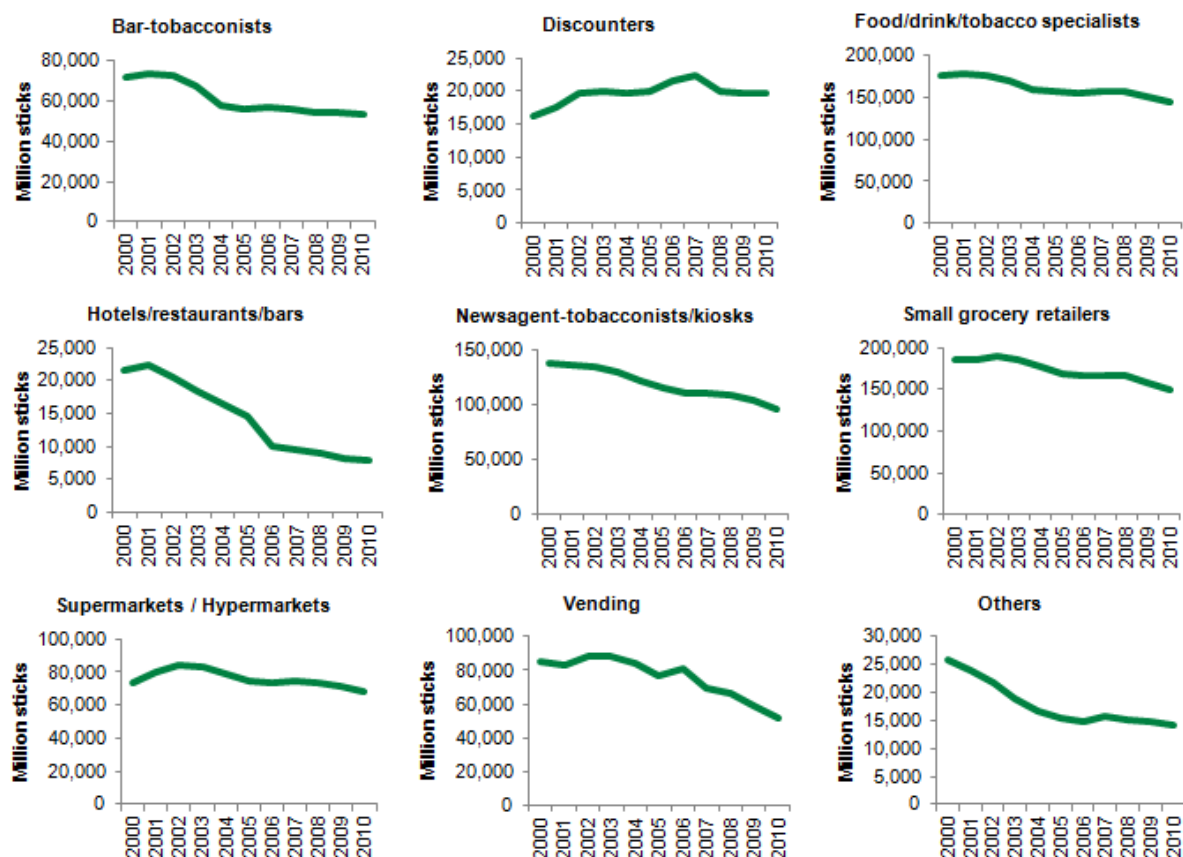
The Euromonitor data generally depict a shift away from smaller, more specialised retailers towards larger stores. Whilst data on the absolute number of retailers within the broad categories are not available from Euromonitor or through other data channels (neither on a country-by-country nor an aggregated European basis), the available information shows that whilst the retail landscape of tobacco sales has not radically changed over the time period, there is a nuanced trend away from small and specialised shops.

---

<sup>120</sup> Data on market value are not available from Euromonitor.

<sup>121</sup> 'Others' denotes internet sales, non-grocery retailing and street vendors

Figure 41: Tobacco Retail Channels, (million sticks), by channel, EU 27 (2000-2010).



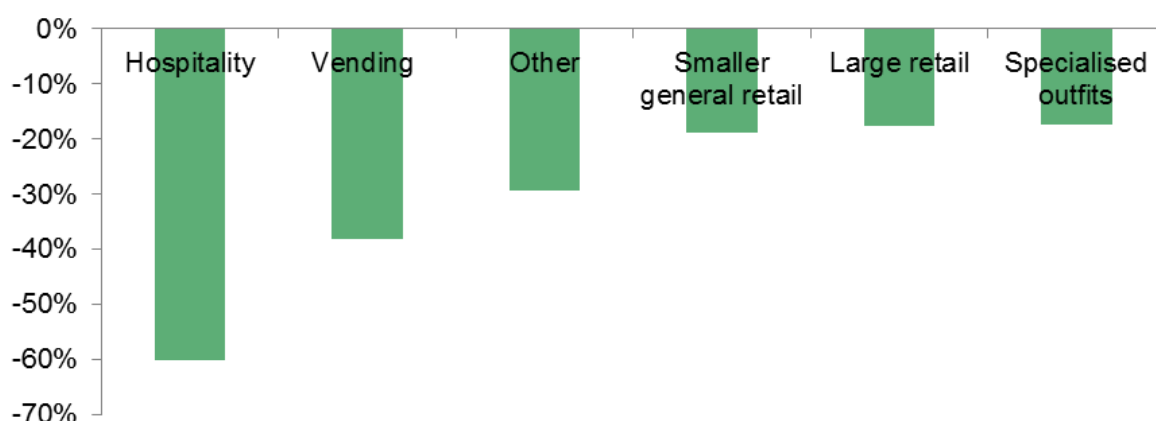
Source: Euromonitor.

Declining sales in cigarettes are affecting all retail channels, but to different degrees. Euromonitor data on ten Member States (Austria, Czech Republic, Denmark, Finland, Germany,<sup>122</sup> Ireland, Italy, Netherlands, Portugal, Spain and Sweden) show that sales have dropped the most in hotels, bars and restaurants (-60%). This phenomenon can be explained by the introduction of smoking bans in public places, as individuals are less likely to buy cigarettes if they cannot smoke in those premises. Sales of cigarettes have dropped the least in specialised stores (-17.34%), large (-17.70%) and small stores (-18.32%), while sales through the internet and non grocery retailing<sup>123</sup> have dropped by 38.6%. The data indicates that the smoking bans and sales restrictions have affected less severely those traditional outlets of cigarettes retail.

<sup>122</sup> Vending machines must contain an electronic device for controlling the age of the buyers.

<sup>123</sup> According to Euromonitor, non-grocery retailing encompasses department stores, parapharmacies/drugstores and other non-grocery retailers.

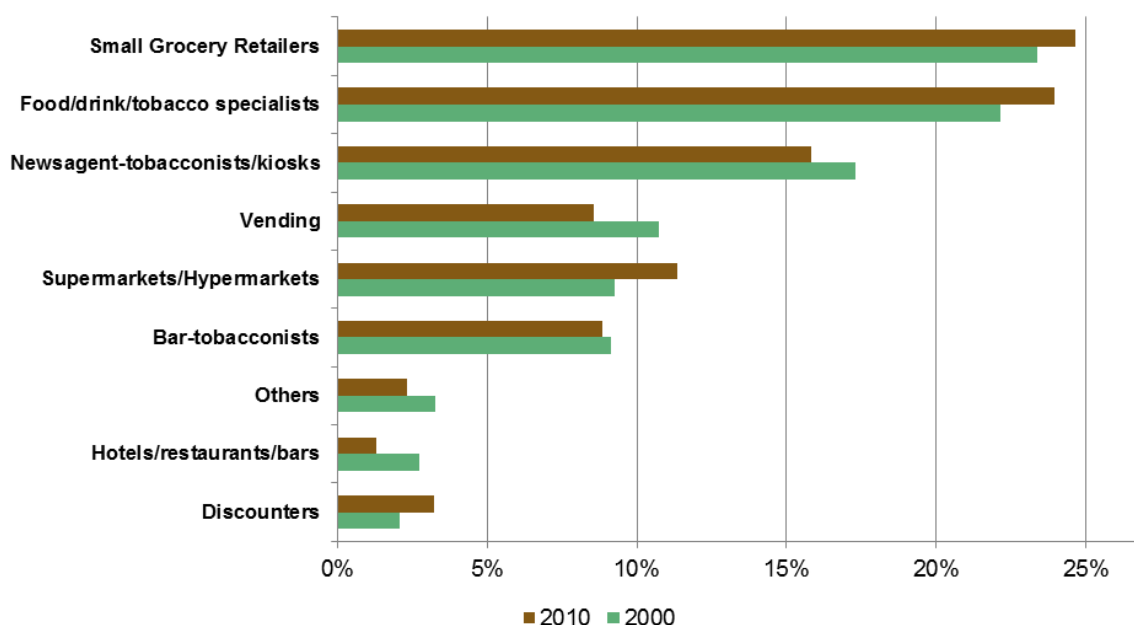
**Figure 42: Percentage change in cigarettes (million sticks) sold through different retail channels , selected Member States, 2000-2010**



Source: Euromonitor. The category “Hospitality” includes cigarettes sold in hotels, restaurants and bar; “Other” those sold through internet retailing and non-grocery retailing, “Smaller general retail” those sold in small grocery retail, “Large Retail” those sold in Supermarkets, Hypermarkets and Discounters; and “Specilaised Outfits” those sold in Newsagent-tobacconists / kiosks, Food / drink / tobacco specialists and bar-tobacconists

The Figure below compares the overall size of tobacco retail channels in the EU27 over the ten year period.

**Figure 43: Aggregate comparison of Tobacco Retail Channel proportions (million sticks), EU27 (2000-2010)**



Source: Euromonitor

### 3.1.12.2 E-cigarettes

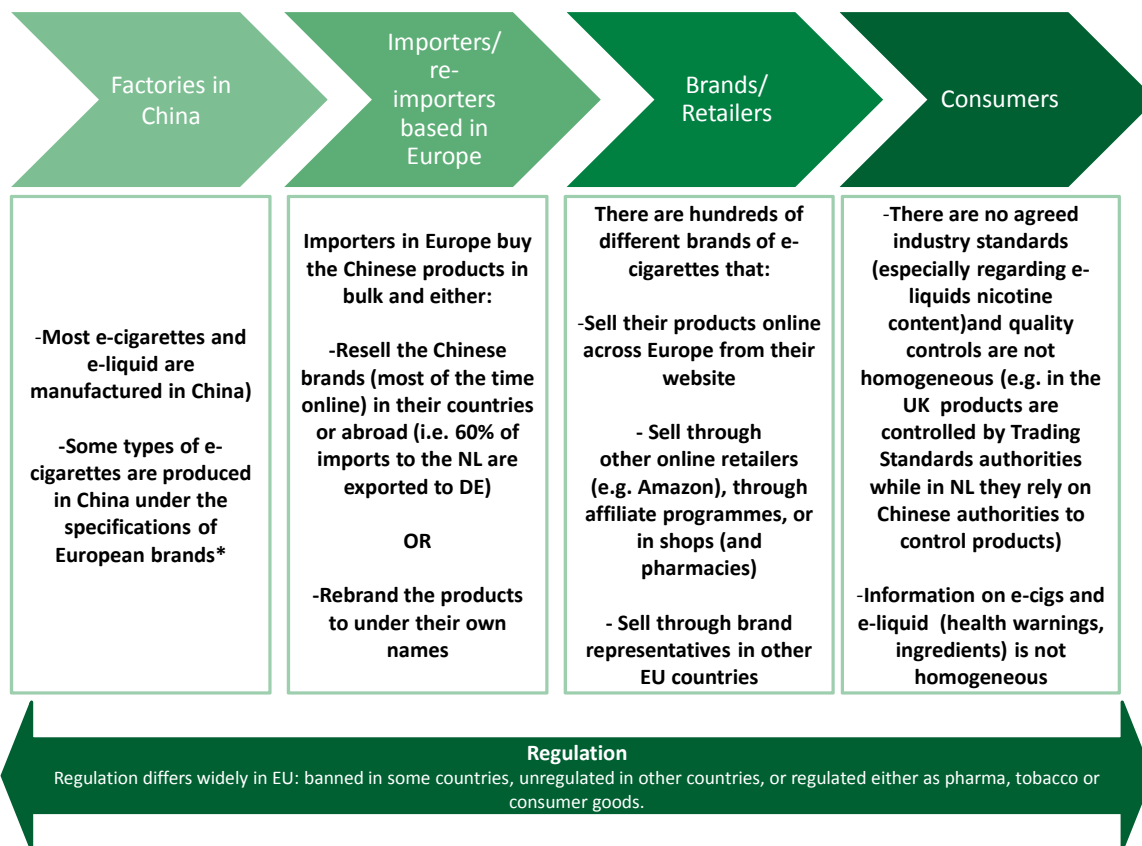
**In terms of primary distribution channel, our research and stakeholder consultation revealed that most trade is done online**, although in some of the websites it is possible to find out local shops selling the products directly. The larger e-cigarette producers have recently begun selling e-cigarettes across a more widespread distributional channel of tobacconists and local shops due to increased demand.<sup>124</sup> Many European distributors claim to be selling their products across Europe but sales figure are both uncertain and volatile.

The figure below has a high level overview of current routes to market for most e-cigarettes. The figure does not aim to be comprehensive but it illustrates that there are many different ways in which these products enter the EU market.

---

<sup>124</sup> Red Kiwi, the German market leader in e-cigarettes, provided information stating that the number of points of sale for its products exceeded 2,000 in Germany in 2011, coinciding with a huge increase in demand in 2011 leading to a six-fold increase in revenue. Source: Interview with Red Kiwi

Figure 44: Value chain of the e-cigarette market in Europe



\* Some brands are starting to manufacture their own equipment ('mods') and nicotine liquid in the UK.

**Outlets/brands selling electronic cigarettes and related accessories and paraphernalia offer a wide range of products to e-cigarettes users.** These include batteries in different colours and shapes, mains and USB battery chargers and cases to carry the electronic cigarettes.

### 3.1.13 Wholesale

No data are available on the number of wholesale distributors of tobacco products.

### 3.1.14 Employment

#### Manufacture

There were **43,416 persons employed in the manufacturing** of tobacco products in the EU in 2007, according Eurostat's most recent and complete dataset. The data is available at aggregated level, thus no granular data for employment in distinct product categories (cigarettes, RYO, cigars, etc.) is available.

**Table 8: Number of employees in the manufacture of tobacco products**

| Member State   | 2000          | 2001          | 2002          | 2003          | 2004          | 2005          | 2006          | 2007          | 2008          |
|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Belgium        | 2,610         | 3,034         | :             | 2,300         | 2,023         | 1,924         | 1,877         | 1,864         | 1,807         |
| Bulgaria       | 10,267        | 10,808        | 11,512        | 10,282        | 8,529         | 7,365         | 6,324         | 4,862         | 4,242         |
| Czech Republic | :             | :             | :             | :             | :             | :             | :             | :             | :             |
| Denmark        | 1,287         | 1,385         | 1,385         | :             | :             | :             | :             | :             | :             |
| Germany        | 12,737        | 12,947        | 12,419        | 11,884        | 11,581        | 11,656        | 11,543        | 11,627        | 10,480        |
| Estonia        | 0             | 0             | 0             | 0             | 0             | 0             | 0             | 0             | 0             |
| Ireland        | 923           | 909           | :             | 794           | :             | :             | :             | :             | :             |
| Greece         | :             | :             | :             | 1,229         | 2,075         | 2,015         | 2,520         | 2,415         | :             |
| Spain          | 7,521         | 6,224         | 6,142         | 5,398         | 6,150         | 5,845         | 4,556         | 3,805         | 3,526         |
| France         | :             | :             | 4,191         | 4,101         | :             | :             | :             | :             | :             |
| Italy          | 8,582         | 8,488         | 8,279         | :             | :             | :             | :             | :             | :             |
| Cyprus         | :             | 286           | :             | :             | 376           | 276           | :             | :             | :             |
| Latvia         | :             | :             | :             | 347           | 329           | 328           | 317           | 311           | 334           |
| Lithuania      | :             | :             | :             | :             | :             | :             | :             | :             | :             |
| Luxembourg     | :             | :             | :             | :             | :             | :             | :             | :             | :             |
| Hungary        | 2,079         | :             | :             | 2,069         | 1,715         | 1,556         | :             | :             | 997           |
| Malta          | :             | :             | :             | :             | :             | :             | :             | :             | :             |
| Netherlands    | :             | 5,192         | 5,064         | 4,661         | 4,729         | 4,272         | 4,473         | 3,788         | 3,969         |
| Austria        | :             | :             | :             | :             | :             | :             | :             | :             | :             |
| Poland         | :             | :             | :             | 6,644         | 6,544         | 6,849         | 7,009         | 7,314         | 6,835         |
| Portugal       | 1,332         | 1,390         | 1,369         | 1,322         | 1,336         | 1,250         | 1,140         | 960           | 679           |
| Romania        | 4,905         | 5,078         | 4,861         | 4,008         | 3,183         | 2,983         | 2,471         | 1,823         | :             |
| Slovenia       | :             | :             | :             | :             | :             | :             | :             | 0             | 0             |
| Slovakia       | :             | :             | :             | :             | :             | :             | :             | :             | :             |
| Finland        | :             | 406           | 396           | 379           | :             | :             | :             | :             | :             |
| Sweden         | :             | :             | :             | :             | :             | :             | :             | :             | 1,533         |
| United Kingdom | 8,901         | 4,733         | 5,991         | 5,637         | 5,095         | 4,916         | 4,586         | 4,647         | :             |
| <b>Total</b>   | <b>61,144</b> | <b>60,880</b> | <b>61,609</b> | <b>61,055</b> | <b>53,665</b> | <b>51,235</b> | <b>46,816</b> | <b>43,416</b> | <b>34,402</b> |

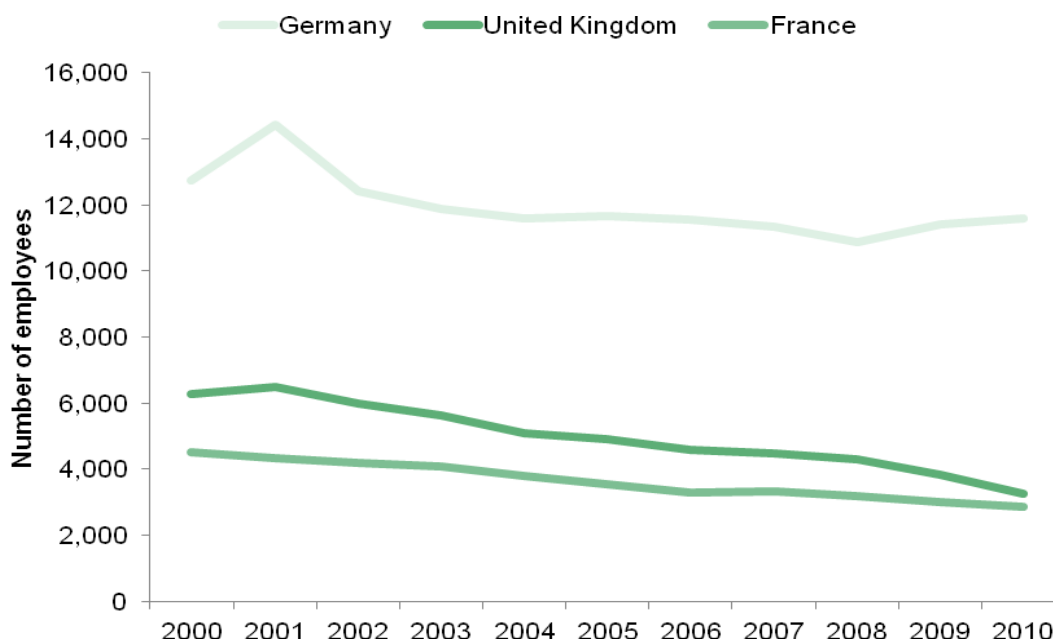
Source: Eurostat (SBS). Missing values reflects unreported data.

Some additional insights on employment in the tobacco sector can be drawn from the industry questionnaire. Stakeholders were asked about the number of own production facilities for cigarettes destined for the EU, their locations and the number of overall employees. Three respondents stated they had a combined 23 cigarette production facilities for cigarettes destined for the EU, one filter production facility and one hand rolling tobacco production facility. These are stationed in twelve EU countries, namely Czech Republic, France, Germany, Greece, Hungary, Italy, Lithuania, Netherlands, Poland, Portugal, Romania and Spain as well as in Ukraine. Overall, two of these companies directly employ 18,000 full-time employees in the EU. The other one of these three companies stated that it was unable to provide the number of

employees working for EU markets. The fourth company stated that it has 24 cigarette factories worldwide, but did not provide EU-specific numbers on employment.

**Labour cost is the largest individual proportional expense in Germany, United Kingdom and France over 2000 and 2010**, consequently analysing employment trends within the tobacco industry is crucial. Between 2000 and 2010, absolute labour costs fell at a slower rate than overall costs (in Germany, labour costs even increased in absolute current prices), so the proportion of overall costs taken up by labour expenditure increased over the decade. In Germany, absolute labour costs rose by 8%, in France and the UK, they fell by -25% and -34%, respectively. This occurred alongside a general decline in employment in the tobacco sector in France and the UK, and employment being at the same approximate level in 2010 as in 2000 in Germany, as the figure below depicts.

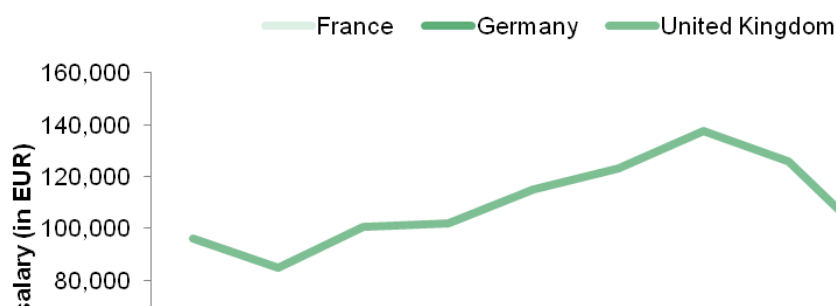
Figure 45: Tobacco Products Number of Employees, 2000-2010



Source: Euromonitor.

Savings were therefore partially achieved through reducing staff (the number of tobacco products industry workers in the three countries, as a whole, fell from 23,553 to 17,716 over the time period, a 25% reduction), but cost reductions in other areas drove the overall expenditure reduction to a larger extent in all three countries. Further, the average salary of workers in the tobacco industry varies between the three countries.

Figure 46: Tobacco products average employee salary (in EUR), 2000-2010





Source: Euromonitor.

Two main facts stand out from this graph. Firstly, UK tobacco industry salaries tend to be much higher than German or French salaries (this is likely because the global headquarters of British American Tobacco and Imperial Tobacco are based in the UK, so corporate salaries drive this average up), even if the fall in the value of sterling after 2007 means that in current prices euro terms, UK tobacco industry salaries were lower in 2010 than in 2000. Secondly, the average salary has increased in France and Germany, and fallen only slightly in the UK (because of the aforementioned sterling depreciation). This could indicate either generally rising salaries of all tobacco workers, or the fact that lower-skilled and lower-paid workers were the ones being laid off over the last ten years. The latter explanation is perhaps more plausible, as manufacturing plants have been closed in regular intervals across Germany, France and the UK, also as a result of consolidation processes. This has led to a reduction in manufacturing jobs.<sup>125</sup>

Other than labour cost trends, there are number of different cost structures (costs of inputs) between countries. Absolute expenditure on agriculture has fallen in all three countries, by -41%, -51% and -68% in France, Germany and the UK, respectively. However, in Germany, where tobacco advertising laws are less restrictive than in the other two countries<sup>126</sup>, advertising still formed a substantial proportion of overall expenditure (13%) in 2010, even if absolute spending on advertising decreased by -31% over a ten year period.

Germany and the UK cut their general expenditure on paper. The UK tobacco companies significantly reduced their expenditure on business and management consultancies by -61% between 2000 and 2010, whilst German tobacco companies actually increased their expenditure on consultancies by 6% over the same time period.<sup>127</sup>

---

<sup>125</sup> A well-publicised UK example is the 2005 shutdown of BAT's Southampton factory, entailing manufacturing being transferred to, amongst other countries, Poland, Romania and Switzerland, and 530 jobs being lost:

<http://news.bbc.co.uk/1/hi/england/hampshire/4684153.stm>.

<sup>126</sup> For example, tobacco advertising in cinemas is still allowed after 6 p.m., and billboard advertising is allowed if it is more than 100 metres away from a school. In France, all tobacco advertising other than at the point-of-sale has been banned since 1993, in the UK, this has been the case since 2002 (Source: Euromonitor).

<sup>127</sup> The French tobacco industry has a starkly different cost structure to the German and UK industries. In 2010, it spent 12%, 6% and 5%, respectively, on recruitment agencies, research and development and fruit and vegetables, none of which forms a significant production expenditure in Germany or the UK.

In conclusion, costs have been reduced radically across the French, German and UK tobacco companies, as they attempt to tackle the challenge of falling sales. Whilst there are common trends across countries, the tobacco production sectors are far from being homogenous, and further market developments would clearly affect tobacco companies, as well as their suppliers, in different countries in different ways. In particular, the limited overview of employment trends in these three countries indicates that employment is not directly linked to falls in sales to the same extent in all countries. Given the fundamental restructuring of tobacco companies' costs over the past ten years, it remains to be seen to what extent a further ten years of similar falls in sales would affect costs, profits and employment within the tobacco sector.

## Retail<sup>128</sup>

According to Eurostat's most recent and complete dataset, there were **150,945 persons employed in the retail** of tobacco products in the EU in 2007. The data is available at aggregated level, thus no granular data for employment in distinct product categories (cigarettes, RYO, cigars, etc.) is available.

**Table 9: Number of employees in the retail sale of tobacco products**

| Member State   | 2000           | 2001           | 2002           | 2003           | 2004           | 2005           | 2006           | 2007           | 2008           |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Belgium        | 302            | 303            | :              | 279            | 394            | 456            | 394            | 421            | 450            |
| Bulgaria       | 776            | 722            | 940            | 1,018          | 988            | 916            | 908            | 1,103          | 1,583          |
| Czech Republic | :              | :              | :              | :              | :              | 3,208          | 3,633          | 4,277          | :              |
| Denmark        | 3,634          | 2,938          | 2,531          | 2,401          | 1,036          | 936            | 865            | 770            | 693            |
| Germany        | 20,306         | 20,852         | 19,043         | 18,280         | 17,043         | 18,435         | 20,108         | 19,523         | 17,281         |
| Estonia        | :              | 28             | :              | :              | :              | 87             | :              | :              | :              |
| Ireland        | :              | :              | 483            | :              | :              | :              | :              | :              | :              |
| Greece         | :              | :              | :              | 4,650          | 4,724          | 5,388          | 5,838          | 5,874          | :              |
| Spain          | 20,006         | 19,701         | 21,679         | 20,347         | 21,761         | 21,658         | 20,734         | 19,953         | 20,609         |
| France         | 7,996          | 7,791          | 8,097          | 8,299          | 8,524          | 8,491          | 9,548          | 9,732          | :              |
| Italy          | 42,507         | 46,216         | 47,069         | 48,136         | 48,375         | 50,183         | 50,509         | 51,796         | 53,972         |
| Cyprus         | 4              | 3              | 3              | 5              | 8              | 17             | 20             | 16             | 8              |
| Latvia         | :              | :              | :              | 14             | 28             | 36             | 44             | 59             | 52             |
| Lithuania      | 160            | 159            | 146            | 156            | 143            | 147            | :              | 164            | 195            |
| Luxembourg     | 54             | 31             | 31             | 32             | 32             | 25             | 27             | 29             | 28             |
| Hungary        | 105            | 1,752          | 1,533          | 1,087          | 960            | 943            | 849            | 728            | 672            |
| Malta          | 131            | 105            | 124            | :              | :              | :              | :              | :              | :              |
| Netherlands    | 4,388          | 4,174          | 4,176          | 5,353          | 5,173          | 5,503          | 5,048          | 5,180          | 4,699          |
| Austria        | 9,534          | 8,668          | 10,003         | 9,993          | 9,968          | 9,794          | 9,881          | 9,991          | 9,783          |
| Poland         | :              | :              | 1,016          | 1,149          | 1,290          | 1,597          | 1,489          | 1,639          | 1,638          |
| Portugal       | 1,536          | 1,446          | 959            | 1,138          | 1,218          | 1,109          | 1,150          | 1,147          | 1,108          |
| Romania        | 3,569          | 2,168          | 1,141          | 784            | 514            | 426            | 472            | 385            | 285            |
| Slovenia       | :              | :              | 231            | 160            | 135            | 147            | 129            | 126            | 116            |
| Slovakia       | :              | 166            | 181            | 326            | 327            | 358            | 372            | 370            | 843            |
| Finland        | :              | :              | :              | :              | :              | :              | :              | :              | :              |
| Sweden         | 4,698          | 4,618          | 4,581          | 4,897          | 4,385          | 4,187          | 3,966          | 3,770          | 3,357          |
| United Kingdom | 35,276         | 31,725         | 25,723         | 23,642         | 21,119         | 17,414         | 14,937         | 13,892         | :              |
| <b>Total</b>   | <b>154,982</b> | <b>153,566</b> | <b>149,690</b> | <b>152,146</b> | <b>148,145</b> | <b>151,461</b> | <b>150,921</b> | <b>150,945</b> | <b>117,372</b> |

<sup>128</sup> Based on the narrow Eurostat definition of those specialised in selling tobacco. Broader estimates of people employed in the sale of tobacco also exist, e.g. the European Confederation of Tobacco Retailers states that it represents the interests of more than 350,000 families "for whom the sale of a legal product such as tobacco...constitutes one of their commercial activities"

([http://ec.europa.eu/health/archive/ph\\_determinants/life\\_style/tobacco/documents/r-142\\_en.pdf](http://ec.europa.eu/health/archive/ph_determinants/life_style/tobacco/documents/r-142_en.pdf))

Source: Eurostat (SBS)

## Wholesale

According Eurostat's most recent and complete dataset there were 48,939 **persons employed in the wholesale** of tobacco products in the EU in 2007. The data is available at aggregated level, thus no granular data for employment in distinct product categories (cigarettes, RYO, cigars, etc.) is available.

**Table 10: Number of employees in the wholesale of tobacco products**

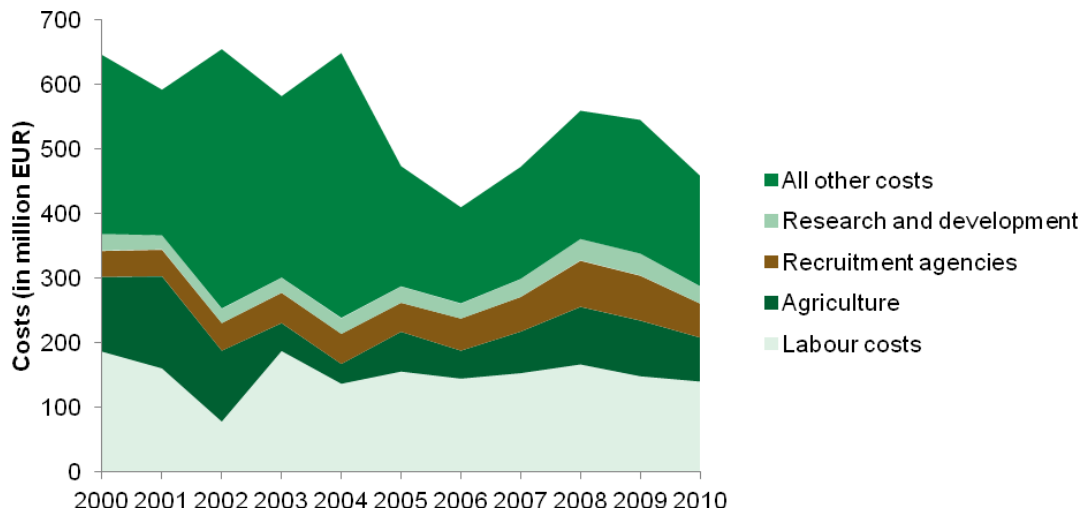
| Member State   | 2000          | 2001          | 2002          | 2003          | 2004          | 2005          | 2006          | 2007          | 2008          |
|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Belgium        | 1,143         | 1,279         | :             | 1,159         | 1,113         | 875           | 872           | 918           | 945           |
| Bulgaria       | 1,225         | 1,351         | 1,491         | 1,799         | 1,820         | 1,911         | 2,147         | 2,520         | 2,584         |
| Czech Republic | :             | :             | :             | :             | :             | 2,553         | 2,811         | 2,913         | :             |
| Denmark        | 226           | 251           | 320           | 148           | 144           | 159           | 221           | 240           | 223           |
| Germany        | 14,772        | 13,350        | 12,790        | 10,694        | 9,415         | 9,079         | 8,681         | 8,164         | 8,464         |
| Estonia        | :             | :             | :             | 119           | 119           | 143           | 134           | 156           | 134           |
| Ireland        | 138           | :             | :             | :             | 162           | :             | :             | 449           | :             |
| Greece         | :             | :             | :             | 7,195         | 7,925         | 3,372         | 3,397         | 3,434         | :             |
| Spain          | 1,898         | 1,813         | 2,215         | 2,239         | 2,502         | 2,326         | 2,680         | 2,864         | 2,593         |
| France         | 741           | 711           | 722           | 1,093         | 1,032         | 1,047         | 1,041         | 4,743         | :             |
| Italy          | 676           | 503           | 692           | 1,201         | 1,076         | 1,373         | 1,452         | 1,582         | 1,214         |
| Cyprus         | 206           | 103           | 106           | 125           | 118           | 137           | 242           | 254           | 246           |
| Latvia         | 277           | 305           | 387           | 289           | 304           | 324           | 327           | 301           | 262           |
| Lithuania      | 583           | 536           | 496           | 510           | 476           | 96            | 157           | 191           | 196           |
| Luxembourg     | 145           | 163           | :             | 187           | 216           | 216           | 221           | 228           | 252           |
| Hungary        | 1,133         | 1,240         | 1,417         | 1,475         | 1,339         | 915           | 1,560         | 1,561         | 1,707         |
| Malta          | 58            | 83            | 77            | :             | :             | :             | :             | :             | :             |
| Netherlands    | 2,019         | 1,828         | 1,693         | 1,609         | 1,799         | 1,666         | 1,711         | 1,715         | 1,686         |
| Austria        | 133           | 145           | 164           | 157           | 157           | 184           | 198           | 237           | 267           |
| Poland         | :             | :             | 2,293         | 3,684         | 3,404         | 3,860         | 4,127         | 3,984         | 4,809         |
| Portugal       | 1,407         | 1,335         | 1,513         | 1,306         | 1,266         | 1,567         | 1,561         | 1,539         | 1,809         |
| Romania        | 5,841         | 5,362         | 5,017         | 5,360         | 5,034         | 5,520         | 5,082         | 5,373         | 2,835         |
| Slovenia       | :             | :             | 235           | 248           | :             | 35            | 117           | 107           | 197           |
| Slovakia       | 429           | 661           | 410           | 825           | 605           | 594           | 559           | 837           | 936           |
| Finland        | 117           | 103           | 136           | 110           | 182           | 176           | 195           | 240           | 195           |
| Sweden         | 433           | 436           | 695           | 589           | 423           | 436           | 467           | 635           | 537           |
| United Kingdom | 1,973         | 1,611         | 4,836         | 4,541         | 5,109         | 1,483         | 4,106         | 3,754         | :             |
| <b>Total</b>   | <b>35,573</b> | <b>33,169</b> | <b>37,705</b> | <b>46,662</b> | <b>45,740</b> | <b>40,047</b> | <b>44,066</b> | <b>48,939</b> | <b>32,091</b> |

Source: Eurostat (SBS)

### 3.1.15 Industrial Cost Structure of the Tobacco Industry

Again, a limited overview of the breakdown of tobacco companies' costs can be offered here, for France, Germany and the UK. The tobacco industry in all three countries radically reduced its overall expenditure, in current terms, between 2000 and 2010.

Figure 47: Tobacco products industry costs (in million EUR), France, 2000-2010

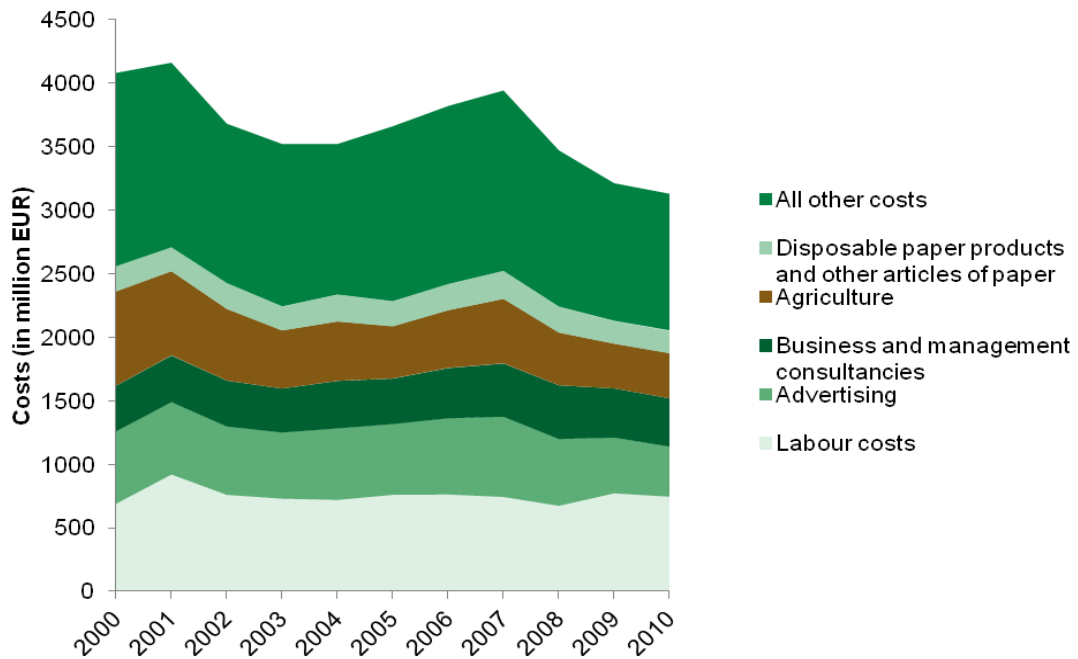


Source: Euromonitor.

In France, total expenditure fell by 29%, from €647 million in 2000 to €459 million in 2010. In Germany, the fall was a slightly smaller 23%, from €4 billion to €3.1 billion. In the UK, the tobacco industry almost halved its costs, from £1.5 billion in 2000 to £796.3 billion in 2010, representing a 47% expenditure decline<sup>129</sup>. These are very large shifts within the space of ten years (by comparison, expenditure of malt liquor companies increased in all three countries over the time period) and highlight an extremely turbulent decade for the tobacco industry.

<sup>129</sup> Note that all of these numbers are in current prices terms.

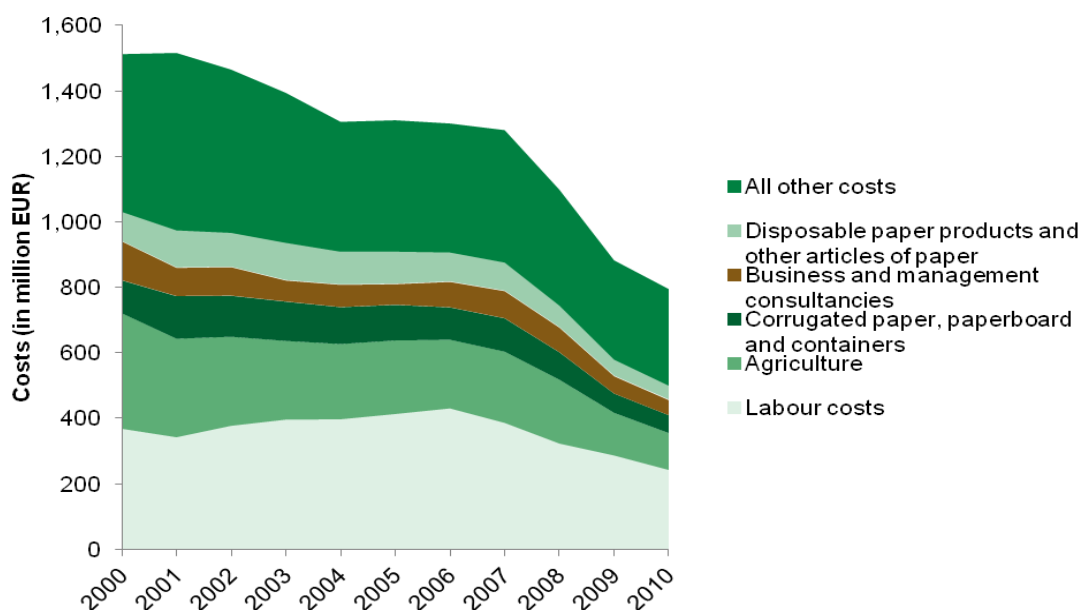
Figure 48: Tobacco products industry costs (in million EUR), Germany, 2000-2010



Source: Euromonitor.

This cost reduction is likely to have been facilitated by efficiency gains from mergers and acquisitions (cf. above) and offers an explanation for the retention of tobacco company profit margins (especially the UK's radical cost reduction is interesting, in the context of the highest profit margin, by some way, of all three countries).

Figure 49: Tobacco products industry costs (in million GBP), United Kingdom, 2000-2010



Source: Euromonitor.

The above figures depict all cost items above 4.5% of overall cost, whilst grouping all other items into ‘all other costs’.

Some interesting insights on costs of the tobacco industry can be drawn from the industry questionnaire. While respondents gave no indication as to the **total variable cost of overall production** destined for sale in EU, they did list a number of factors that are included in such costs. Only two companies provided this information. One company stated that the three categories of their variable costs are:

- leaf tobacco (48% of variable costs)
- direct materials (including cigarette paper, hinge lids, wrapping material, filters, cartons, inks) (37% of variable costs), and
- conversion costs (including labour costs and manufacturing overhead costs incurred in converting a material from one form or type into another) (15% of variable costs).

Another company split variable costs into:

- wrapping and packaging materials (including cigarette paper and filters),
- leaf tobacco,
- manufacturing costs and
- supply chain costs.<sup>130</sup>

<sup>130</sup> While these breakdowns refer to the variable costs of overall production destined to EU markets; two respondents also provided the breakdown of variable costs for the production of cigarettes only. One company breaks down

Finally, two companies gave an indication of their **non-manufacturing expenditure relating to production and sales in EU**. This includes R&D, marketing/promotion, administrative costs (incl. overheads), distribution costs and other costs. These figures were very similar and amount to €1.3 billion and €1.5 billion annually respectively.

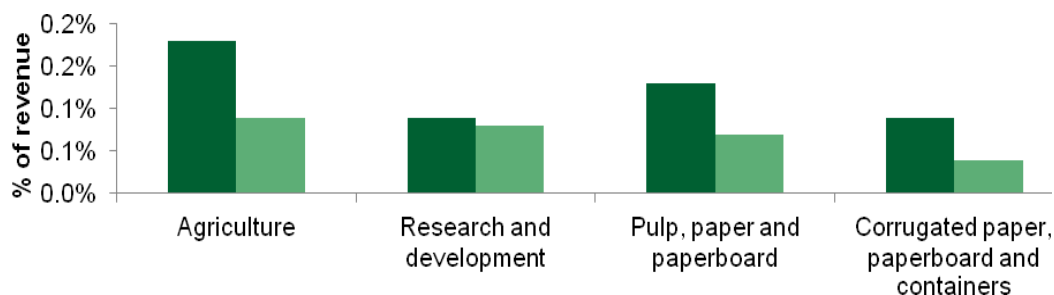
### 3.1.16 Industry Dependence on the Tobacco Products Industry

This reduction in the expenditure of the tobacco industry has necessarily entailed a large fall in the dependence of other industrial sectors on the tobacco industry, in terms of percentage of revenue derived from tobacco industry buyers. This is evidenced by trends in France, Germany and the UK.

**In particular, a common trend across all three countries is the fall in agriculture’s revenue percentage derived from tobacco company buyers.** In France, this fell from 0.18% to 0.09%; in Germany, from 1.07% to 0.46% and in the UK from 1.50% to 0.35%. In addition, the paper, advertising, broadcasting and research & development sectors now receive less of their income from the tobacco industry.

National specificities are clearly observable within these three countries. Figure 51 depicts a **selection** of sectors which derived over 0.04% of their revenue from the tobacco industry in 2000. Some unsurprising overlap with the main expenditure items of tobacco companies is observable.

**Figure 50: France, selected sectoral dependence on tobacco products industry as buyer/client (in % of revenue), 2000 and 2010**



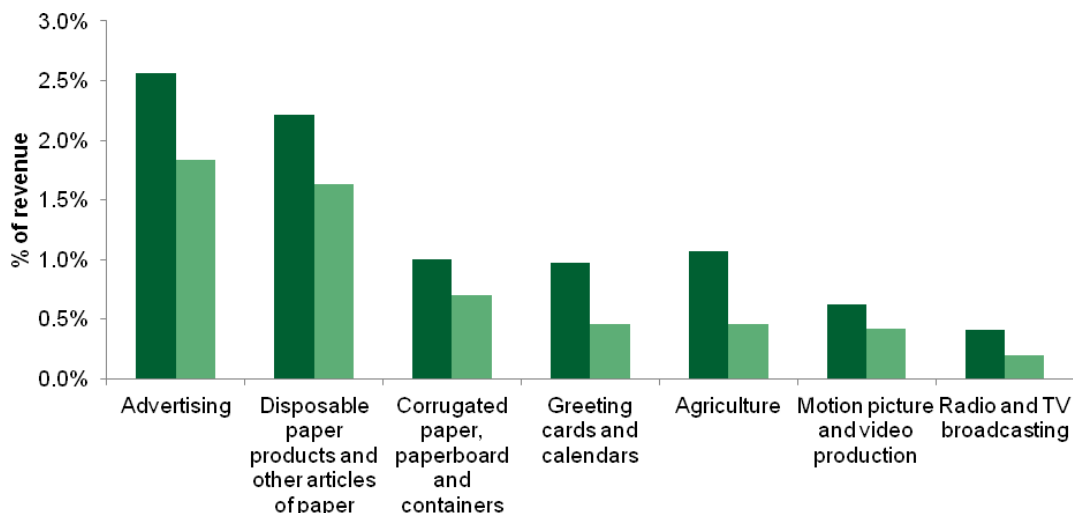
Source: Euromonitor.

---

cigarettes production variable costs into leaf tobacco (68%), direct material (22%) and conversion costs (10%). Another company breaks them into leaf tobacco (75%) and direct material (25%). See Appendix 2 for more details.

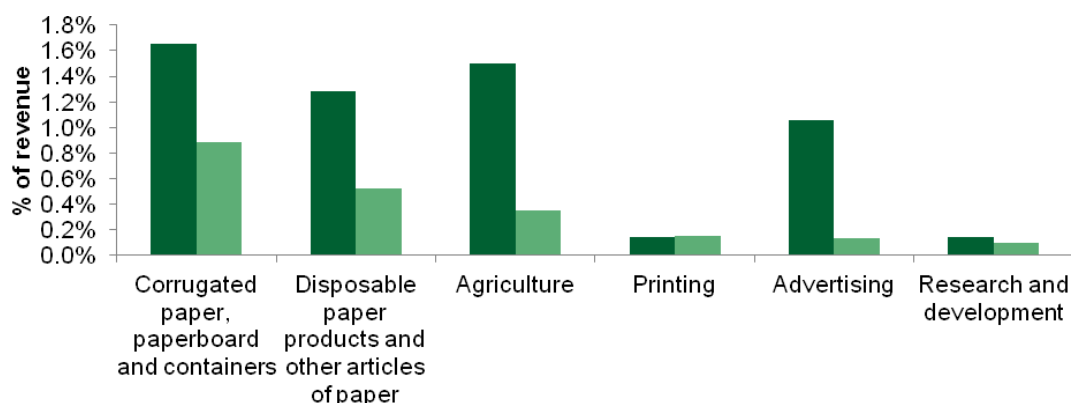


**Figure 51: Germany, selected sectoral dependence on tobacco products industry as buyer/client (in % of revenue), 2000 and 2010**



Source: Euromonitor.

**Figure 52: United Kingdom, selected sectoral dependence on tobacco products industry as buyer/client (in % of revenue), 2000 and 2010**



Source: Euromonitor.

A striking national specificity is the German advertising sector's continued dependence on the tobacco industry as a client. Though the revenue share derived from tobacco declined from 2.56% to 1.84% between 2000 and 2010, advertising is the German sector most dependent on the tobacco industry as a client. Given the aforementioned allowance of tobacco advertisements in cinemas after 6 pm, it is unsurprising that the motion picture and video production sector still derived 0.42% of its revenue from the tobacco industry in 2010. However, given the fact that an absolute ban on tobacco advertising on the radio was passed in 2006 (TV advertising had already been banned), it is unclear why radio and TV broadcasting companies still obtain a part of their revenue from tobacco.

The effect of tobacco legislation on industries is highlighted by the juxtaposition of Germany and the UK. In 2000, the UK advertising industry obtained 1.06% of its revenue from the tobacco industry. Following the 2002 advertising ban on everything but point-of-sale advertising, this revenue share has fallen to 0.13%.

Just as overall tobacco industry expenditure on agriculture dropped between 2000 and 2010 (as shown above), the revenue share through tobacco industry clients has dropped in all three countries.

A general theme in all three countries is the dependence of various paper sectors on the tobacco industry. Producers of corrugated paper, pulp, paperboard, containers, disposable paper products and other paper products still derive significant revenue shares from the tobacco industry, despite falls over the ten years.

Tying in with the cost analysis above, almost all other industries' dependence on the tobacco sector as a client have declined in all three countries. These substantial prior shifts again beg the question as to how additional market changes would alter other sectors further, given the large shifts that have already occurred.

## 3.2 Trade

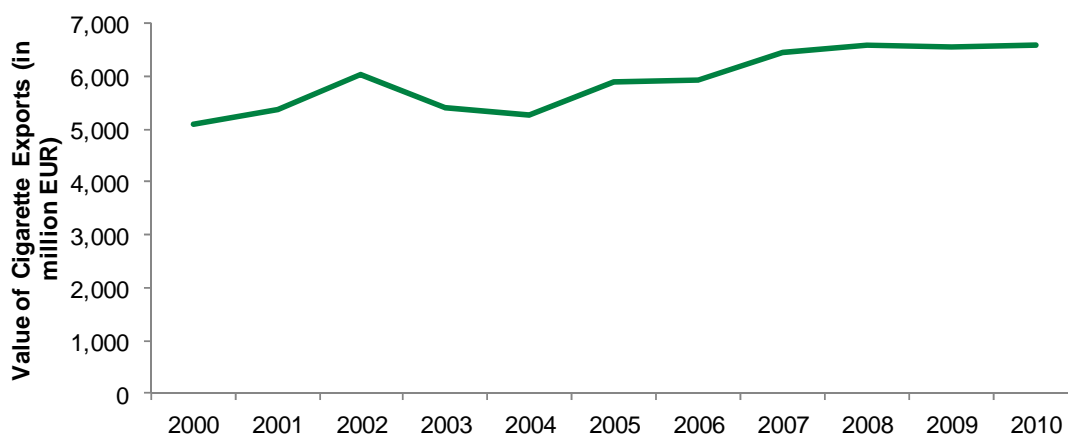
### 3.2.1 Intra-EU Trade

#### 3.2.1.1 Cigarettes

Whilst this overall trend **of intra-EU trade** is clearly distinguishable on an aggregate basis, assessing individual country trends over the time period is hampered by Eurostat data problems (outlined in footnotes). Because of the inconclusive nature of such a country-by-country analysis, it is omitted here.

**Eurostat figures show that the overall value of cigarettes traded within the EU between 2000 and 2010 was €65 billion.** The trend over this time period was upward-sloping: from reported intra-EU export values of € 5 billion in 2000, it raised to €6.5 billion in 2010. This corresponds to a **30.78% increase over this period.** Again, for the same reasons as outlined above, a country-by-country analysis is omitted here.

Figure 53: Value of intra-EU trade of cigarettes (2000-2010)

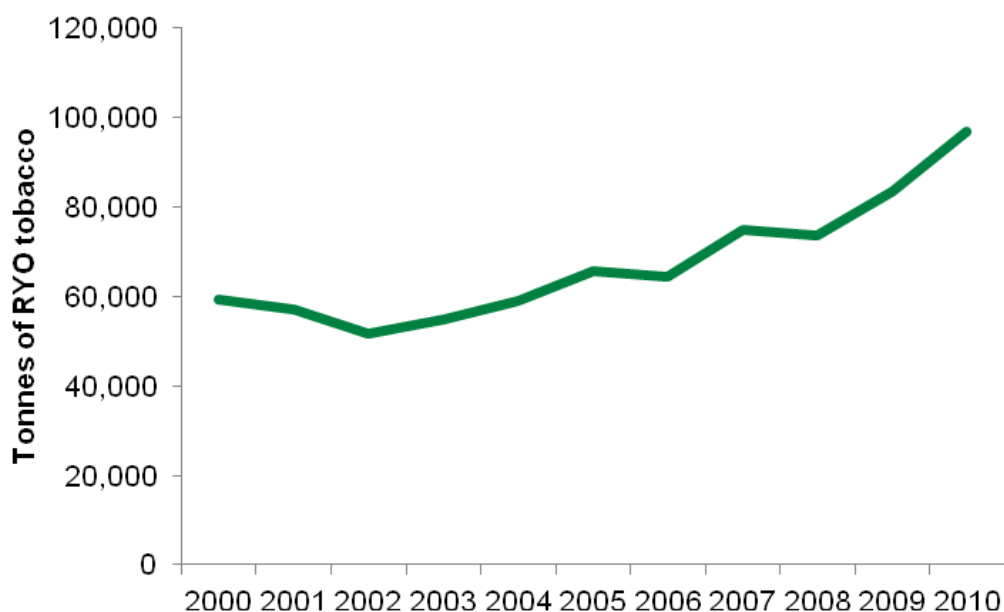


Source: Eurostat export figures, for product "24022090" (cigarettes). Data are not available for all of the 2000-2010 period for Malta, Slovakia, Slovenia, Cyprus, Hungary, Romania and Poland.

### 3.2.1.2 Roll-Your-Own Tobacco (RYO)

Eurostat export figures show that intra-EU trade in RYO tobacco has been steadily increasing between 2000 and 2010. From an initial level of just under 60,000 tonnes, in 2010, EU27 countries exported almost 100,000 tonnes (97,033 tonnes) of smoking tobacco.<sup>131</sup>

Figure 54: Intra-EU trade in Roll-Your-Own tobacco, in tonnes



Source: Eurostat

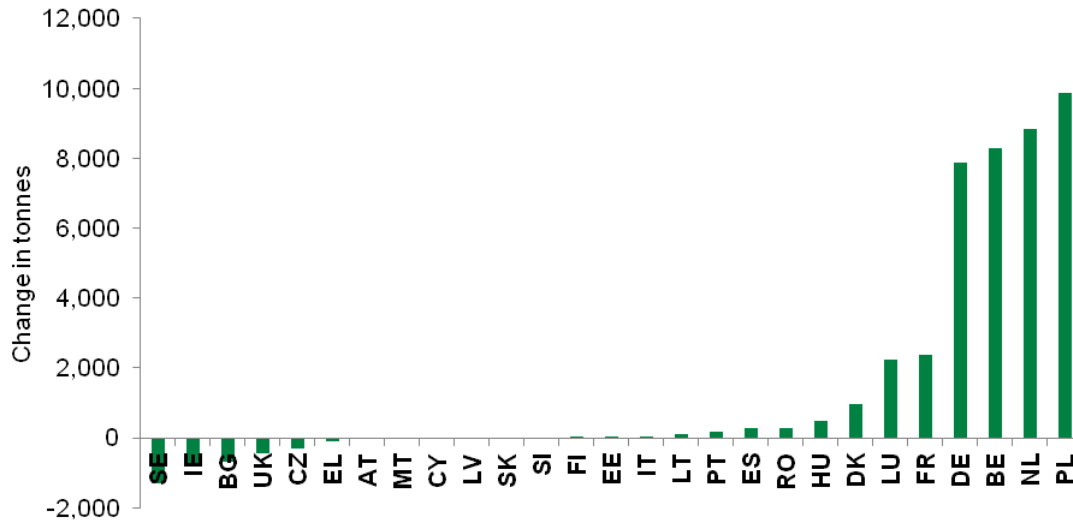
Within this general upward trend have been some country-specific changes. In absolute terms<sup>132</sup>, Poland's exports of RYO tobacco increased by the most (nearly 10,000 tonnes)<sup>133</sup>, whilst Sweden's exports decreased by the most (-1,290 tonnes).

<sup>131</sup> Note that this specifically excludes raw tobacco intended for cigarettes.

<sup>132</sup> Because many countries display 0 values in some years, an absolute measure is described here rather than a percentage measure.

<sup>133</sup> This is likely related to the fact that Poland has become a very significant player in the general export of tobacco products over the time period, cf. [http://wcoomdpublishings.org/downloadable/download/sample/sample\\_id/10/](http://wcoomdpublishings.org/downloadable/download/sample/sample_id/10/) and [http://www.tobaccoatlas.org/downloads/TobaccoAtlas\\_sm.pdf](http://www.tobaccoatlas.org/downloads/TobaccoAtlas_sm.pdf)

Figure 55: Absolute change in intra-EU trade in RYO tobacco, 2000-2010, in tonnes, by country



Source: Eurostat

### 3.2.1.3 Cigars and Cigarillos

In terms of intra-EU exports in cigars and cigarillos<sup>134</sup>, Eurostat export figures show fluctuations between 2000 and 2010. The volume of trade was lower in 2010 than in 2000, at 7.4 billion units, falling from 9 billion units in 2000. This represents an 18% drop in exports. However, this fall was not a continual trend over the time period – exports peaked in 2001 and in 2005 at levels higher than in 2000 or 2010.

<sup>134</sup> Note that Eurostat uses the categorisation ‘cigars, cheroots and cigarillos containing tobacco’

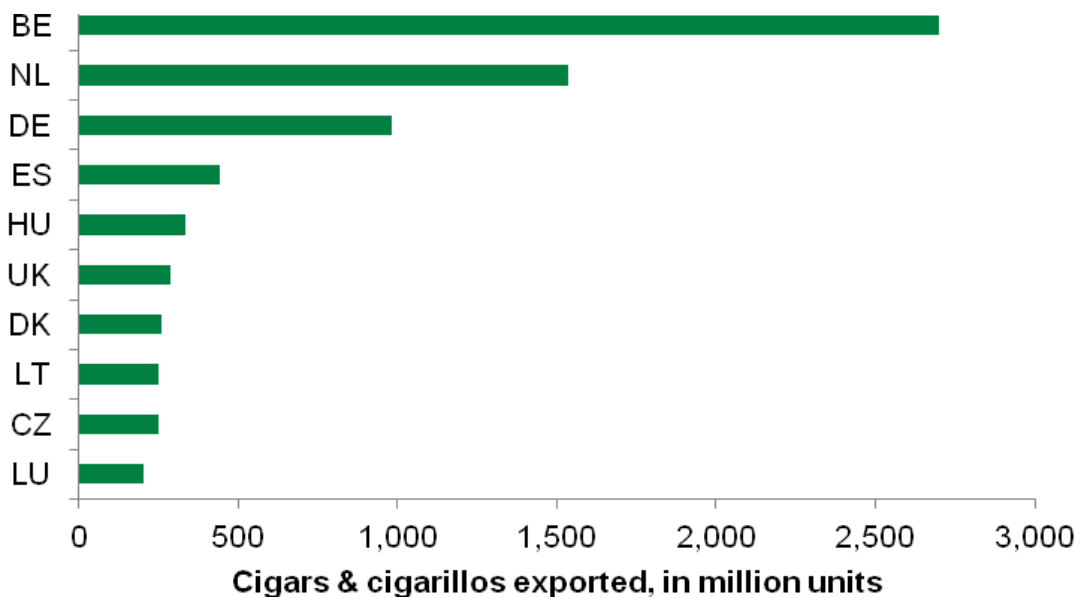
Figure 56: Intra-EU exports of cigars and cigarillos, 2000-2010, in million units



Source: Eurostat

As the below figure depicts, the largest exporter of cigars and cigarillos is now Belgium, exporting 2,702 million units in 2010, followed by the Netherlands, exporting 1,538 million units. Many EU countries do not export cigars and cigarillos, or only very small quantities.

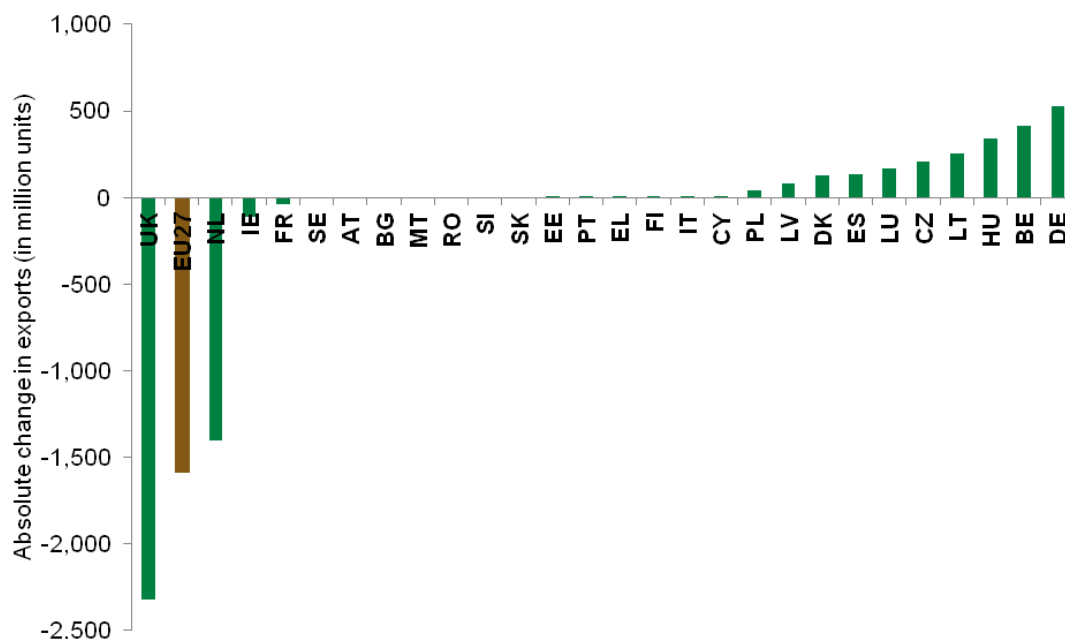
Figure 57: Absolute number of cigars and cigarillos exported (intra-EU), in million units, 2010



Source: Eurostat

The below figure shows the absolute change<sup>135</sup> in intra-EU exports between 2000 and 2010. The UK saw the biggest absolute reduction in exports, from 2,609 million units to 288 million units (an 89% reduction), whilst Germany saw the largest absolute rise in exports, from 458 million units to 985 million units (a 115% increase).

Figure 58: Absolute change in exports of cigars and cigarillos, in million units, 2000-2010, by country



Source: Eurostat

### 3.2.2 Extra-EU Trade<sup>136</sup>

#### 3.2.2.1 RYO

Extra-EU exports in RYO tobacco have also been increasing, but at a more volatile pace – indeed, in 2008, RYO tobacco extra-EU exports were below those in 2000. From an initial level of 16,129 tonnes in 2000, extra-EU exports in smoking tobacco stood at 26,503 tonnes in 2010.

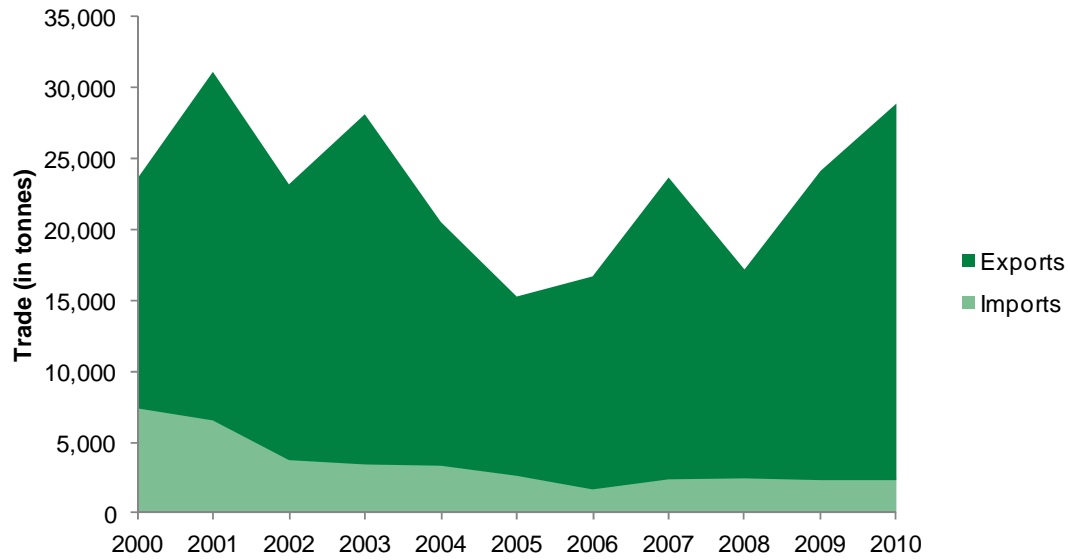
Over the same time period, imports into the EU27 countries from outside the EU27 countries fell from 7,428 tonnes in 2000 to 2,370 tonnes in 2010.

Overall trade (exports and imports) of RYO tobacco thus increased from 23,557 tonnes in 2000 to 28,872 tonnes in 2010, as depicted in the graph below.

<sup>135</sup> The absolute change is shown because of the many 0 values and subsequent percentage calculation problems

<sup>136</sup> Note that data on extra-EU trade of cigarettes have been omitted due to data reliability issues, outlined elsewhere within this report.

Figure 59: Extra-EU RYO Tobacco Trade (Imports & Exports), 2000-2010, in tonnes



Source: Eurostat



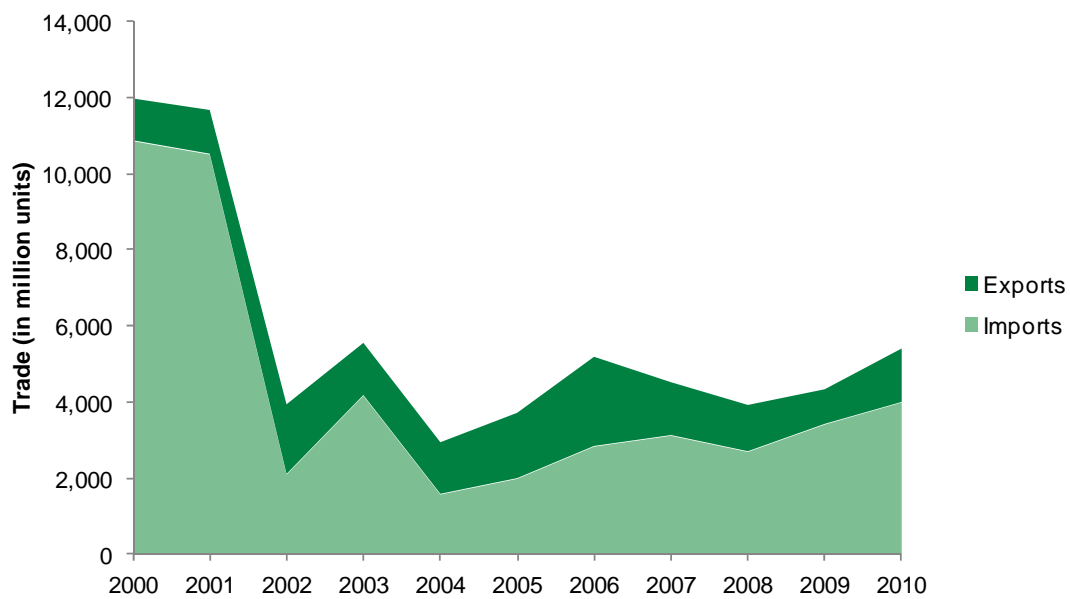
### 3.2.2.3 Cigars and Cigarillos

Extra-EU exports in 2010 were at a higher level than in 2000 – EU27 countries exported 1,403 million units of cigars and cigarillos to non-EU countries in 2010, a 28% rise from the 2000 level of 1,099 million units.

Extra-EU imports in 2010 were of a much larger volume than exports, but also much lower than imports in 2000. EU27 countries imported 10,869 million units of cigars and cigarillos from non-EU countries in 2000, which fell to 3,993 million units in 2010.

Overall, trade (exports & imports) fell from 11,968 million units in 2000 to 5,497 million units in 2010.

**Figure 60: Extra-EU trade of cigars and cigarillos, 2000-2010, in million units**



Source: Eurostat

### 3.2.3 Trade in Smokeless Tobacco

Some information was provided by Swedish Match<sup>137</sup> on smokeless tobacco imports and exports in some European countries for the year 2008:

**Table 11: Import and export values of smokeless tobacco, selected countries**

| Country            | Import value (€)  | Export value (€) |
|--------------------|-------------------|------------------|
| Belgium            |                   | 20,746,000       |
| Czech Republic     | 175,700           |                  |
| Denmark            | 2,058,000         | 5,449,000        |
| France             |                   | 14,932,400       |
| Germany            | 1,149,000         | 5,822,300        |
| Italy              | 902,000           |                  |
| The Netherlands    | 704,000           |                  |
| Poland             | 448,400           |                  |
| Switzerland        | 3,680,000         |                  |
| United Kingdom     | 301,200           |                  |
| <b>Total Value</b> | <b>24,350,700</b> |                  |

### 3.2.4 Trade in E-cigarettes

**E-cigarettes are bought in bulk and sold rebranded in Europe, although it is possible to buy them with their Chinese brands.** In some cases, e-cigarettes are produced in China under the specifications of a European brand (e.g. Gower Enterprises’ Halo e-cigarettes). E-liquid is also manufactured in China, Dekang being the largest manufacturer. The e-liquid is bought in bulk and rebottled by local brands in Europe. Some “mods” and nicotine liquid are being devised and produced in Europe. The German market leader, Red Kiwi, specifies that it mainly uses liquids produced and bottled in Italy by Flavourart.<sup>138</sup> Outside of China, The Electronic Cigarette Company/Totally Wicked, based in the UK and the US, are also fairly large manufacturers. Most of the trade is done online and vendors claim to sell their products across Europe.

#### **The Netherlands, a hub for the rest of Europe**

In the Netherlands, vendors of electronic cigarettes are operating as a hub, re-selling most of the e-cigarettes they import from China to the rest of Europe. According to Stelda, there are around 20 vendors in the Netherlands, operating with a turnaround of 4-6 million euro per year. To Stelda, however, this is a conservative figure. Of these 20 vendors, around five or six are considered large vendors. Around 20% of their sales are for the internal Dutch market (5,000 to 10,000 regular users, 30,000 to 40,000 one time buyers per year), around 60% are sales to

<sup>137</sup> Swedish Match Presentation for Matrix Insight. Brussels 15 December 2011

<sup>138</sup> Interview with Red Kiwi 16 December 2012

German vendors (in Germany it is prohibited to import nicotine containing liquids from outside Europe), and the remaining 20% are sales to vendors in Denmark, Spain, France, Austria and Switzerland. Around 90% of the sales to the Dutch market come from Dutch vendors, with the remaining 10% split between Chinese and other European brands. The 20 Dutch vendors are privately owned companies and they employ in total around 80 persons. The most popular brands in the Netherlands are Joye, T-Rex and Smoktech.

## 4.0 Dimensions of the TPD Review

### 4.1 Packaging and Labelling

#### 4.1.1 Introduction

There are three possible domains of regulation to be considered in this area:

- Plain packaging
- Labelling, such as health and pictorial health warnings, and the size of the warning with respect to the total size of the package

Guidelines for Article 11 of the WHO FCTC recommend that Parties should mandate full colour pictures or pictograms, in their packaging and labelling requirements. These warnings are expected to appear on at least 30%, and ideally 50% or more, of the package's principal display areas; be large, legible in the country's principal language(s); and have multiple, rotating messages<sup>139</sup>.

As per the TPD, text warnings should be on the tobacco packs and use of pictorial warning labels is optional<sup>140</sup>. The warning size is to be as follows and should be surrounded by a border of 3- mm in width:

- 35% (30% front, 40% back) unilingual countries
- 39% (32% front, 45% back) bilingual countries
- 43% (35% front, 50% back) trilingual countries

In May 2005, the European Commission adopted a library of 42 colour photographs and other illustrations Member States may choose to use<sup>141</sup>.

According to questionnaires responses (Appendix 2) direct materials (which includes cigarette paper, hinge lids, wrapping material, filters, cartons, inks) account for approximately 37% of overall variable production costs of the four largest tobacco companies. Significant elements of the packaging and printing process are outsourced, with industry stating that they often sub-contract to a number of companies in order to encourage competition. Respondents to the questionnaire named more than 31 external packaging suppliers.

One company also specified that the primary production costs associated with a pre-printed flat pack are printing and materials, however no percentages were provided. Pre-printed flat packages were purchased from third party suppliers, generally for prices around €0.02 each (depending on the specifications, economies of scale, etc.). Furthermore, the companies which replied to the questionnaire unanimously reported that there are significant cost differences between different types of packages. Three companies identify responsible factors such as quality grades, production processes, design features, volumes, pack format, pack content, pack materials, types of machines required and different machines speed. Package costs also vary across countries. Three companies name reasons such as consumer demand (where economy brands are dominant, premium markets packaging costs will be higher), economies of scale, costs associated with different forms of health warnings and other regulatory costs.

---

<sup>139</sup> <http://www.who.int/tobacco/healthwarningsdatabase/en/index.html>

<sup>140</sup> [http://tobaccofreecenter.org/files/pdfs/en/WL\\_examples\\_en.pdf](http://tobaccofreecenter.org/files/pdfs/en/WL_examples_en.pdf)

<sup>141</sup> [http://ec.europa.eu/health/tobacco/law/pictorial/index\\_en.htm](http://ec.europa.eu/health/tobacco/law/pictorial/index_en.htm)

Overall, it is estimated that the total variable costs the big four, thus excluding SMEs, spend annually on direct materials are less than €1.68 billion.<sup>142</sup>

#### 4.1.2 Baseline Regulatory Position

In late 2010, at least 39 countries/jurisdictions in the world had finalised requirements for picture warnings<sup>143</sup>. In the EU, mandatory pictorial health warnings in cigarette packs are used in Belgium<sup>144</sup> (2007), Romania (2008), the UK (2009), Latvia (2010), France (2011), Malta (2011), Spain (2011), and Denmark (February 2012).<sup>145</sup> Hungary and Ireland have passed legislation introducing pictorial health warnings from 2012/2013.<sup>146</sup>

Australia is the first country in the world to introduce plain packaging. It has been approved in Australia in 2011 but has not been put in place yet. The law will come into force in December 2012.

#### 4.1.3 Single Market Considerations

Different labelling regimes exist in different Member States. Differences in regimes are also present across products. For example, in some Member States (e.g. Belgium) pictorial health warnings are mandatory for cigarette packs but not for roll your own tobacco pouches. Consequently, there is a rationale for harmonising regulation in this field.

#### 4.1.4 Industry Response

A number of issues have been raised by the industry, when assessing the impacts of the proposed policy option related to labelling and packaging, including:

- **Costs:** companies reported different costs related to redesign of packages due to introduction of mandatory pictorial warnings in Belgium.<sup>147</sup> One company stated that the average one-off cost per brand was €41,000, due to design/artwork/cylinders/communications/material write offs, and €14,500 per SKU. Another response reported that the average one-off cost per SKU was over €20,000. Another company stated that it incurred over €5,600 in annual costs per SKU directly related to the annual rotation of pictorial health warnings; as well as an absolute figure of €77,000 cost due to write-offs of non-compliant packaging materials and non-compliant stocks. This company did not, however, provide estimates of the initial one-off costs or the indirect costs of design, production, inventory and stock management. Only one company did not answer this question. These costs are somewhat different than those

---

<sup>142</sup> For a calculation of this value, please refer to Appendix 4.

<sup>143</sup> [http://tobaccofreecenter.org/files/pdfs/en/WL\\_status\\_report\\_en.pdf](http://tobaccofreecenter.org/files/pdfs/en/WL_status_report_en.pdf)

<sup>144</sup> Starting date of mandatory use in parentheses

<sup>145</sup> According to Cunningham, R. (2012), at least 47 countries/jurisdictions have finalized requirements for picture warnings. See Cunningham, R. (2012), Cigarette Package Warning Size and Use of Pictures: International Summary, Canadian Cancer Society, March 4, 2012.

<sup>146</sup> Uruguay and Honduras have currently the largest warnings in the world which cover 80% of the front and back of packages. In Uruguay, prior to March 2010, tobacco packages were required to have health warnings covering 50% of the front and 50% of the back of the package [http://tobaccofreecenter.org/files/pdfs/en/WL\\_examples\\_en.pdf](http://tobaccofreecenter.org/files/pdfs/en/WL_examples_en.pdf)

<sup>147</sup> The case of Belgium was prompted in the interviews. As Appendix 2 reports, respondents indicated that there are differences between one off costs of redesigning packages due to legislation in different Member States. For more details on costs please refer to Appendix 2

reported for redesign of packages not prompted by legislation. One company stated that a global brand re-design costs around €7m, including development, tooling and write-offs. Re-design costs depend heavily on geographic coverage and the number of brand variants. Another stated that a packaging change costs over €20,000 per SKU, primarily due to printing and embossing cylinders being changed. Respondents reported different reasons for changing packaging. One stated that global brands and some high volume local brands get refreshed every 2-3 years, whilst other brands (at least 50% of their brands) are likely only to be redesigned due to legislative requirements. Another company stated that the average frequency for changes of the main stock keeping units (SKUs) is every three years. Two companies only indicated that re-designs occur when business needs emerge.

- **Intellectual property rights (IPR) and trademarks: industry respondents universally contended that** plain packaging and new labelling requirements making health and/or pictorial health warnings larger would impact on intellectual property rights, brand equity and trademarks. The tobacco industry considers that larger labelling requirements would lead to the erosion of valuable intellectual property as they would lead to an “expropriation” of important display areas of the pack. They contend that this would undermine the ability of tobacco companies to brand and distinguish their products. The industry could not, however, quantify the value of lost IPR.<sup>148</sup>
- **Limited access to new brands and new competitors:** if plain packages were to be introduced, the tobacco industry considers that the policy could have an important impact on competition. They consider retailers would have little incentive to stock new brands and it would be very difficult for new competitors to successfully enter the market or for an existing player to compete by launching a new brand.
- **Crime risks related to illicit trade:** industry contended that plain packages could have unintended consequences such as the continued growth of the illegal market. The industry considers that there is a risk that plain packages will reduce their brand recognition. This last issue is one of the main conclusions of Transcrime’s (2011) report on the revision of the TPD<sup>149</sup>. According to this report, generic packaging is likely to impact of consumers’ capacity to distinguish legitimate products from counterfeit ones and there is a high risk that they may favour increased counterfeiting of tobacco products. The study suggests that there is a risk that the envisaged policy options (especially plain packaging, “polluter pays” principle and display ban) may create unintended opportunities for the illicit trade and that further analysis on the link between legislation and crime needs to be conducted. However, the study does not provide substantiated evidence on such causal link. A study by Deloitte commissioned by BAT<sup>150</sup> states that there are concerns that plain packaging could increase the supply and demand of illicit tobacco by making contraband more attractive or, by removing branding,

---

<sup>148</sup> Gervais (2010) on the compatibility of proposed tobacco packaging legislation with international trade rules (TRIPS Agreement and the Paris Convention) raises issues on whether there are sufficient legal bases to justify the prohibition to use certain marks on the packaging of tobacco products in order to achieve legitimate public health objectives. However we have not been provided with any data or studies that allow us to estimate the economic impact of regulation of packaging on trademarks and intellectual property rights.

<sup>149</sup> Transcrime (2011): “Crime proofing the policy option for the revision of the Tobacco Products Directive. Proofing the policy options under consideration for the revision of EU Directive 2001/37/EC against the risks of unintended criminal opportunities”. Milan.

<sup>150</sup> Deloitte (2011): “Tobacco Packaging Regulation: An international Assessment of the intended and Unintended Consequences.” A Deloitte Report for British America Tobacco.

making it harder for consumers to justify the premium paid for licit tobacco products. However, these concerns have not been corroborated with any data. In fact, the same reports states that “Our analysis concludes that there is no statistically significant direct relationship between PSA [pack space appropriation], including increasing the size of government health warnings, and illicit tobacco consumption”.<sup>151</sup> In the industry’s opinion, plain packages will push consumers out of premium priced products into cheaper illegal but branded products. Consumers may decide to buy a branded product on the illegal market smuggled in from outside the EU instead of paying double the price for a premium product. This, according to the industry, could have dramatic consequences on economic players along the tobacco value chain, including retailers, farmers and governments that can lose substantial amounts of revenue. In the industry’s opinion, plain packages are easier and cheaper to counterfeit, more difficult to detect and make it more difficult to consumers to distinguish between original and counterfeited products. This in turn could increase supply of such products.

- **Marketing** – according to industry responses, foreseen labelling and packaging regulation could reduce the industry’s ability to market products effectively with consequent impact on premium products as consumers move to lower value products and/or purchase counterfeit products.
- **Production** – as reported by respondents to the questionnaire submitted to industry, it was estimated that the one-off costs associated with the introduction of pictorial health warnings in Belgium were between €14,500<sup>152</sup> and €20,000 per SKU<sup>153</sup>, taking into consideration that the legislative change left the size of the health warning unchanged.<sup>154</sup> The Belgian example suggests that the introduction of pictorial health warnings also increased on-going costs. Due to the legislative change an overall increase in (variable) manufacturing costs could take place between 1.3<sup>155</sup> and 1.5%.<sup>156</sup> Assuming the extrapolation of this 1.3% - 1.5% range is valid across the four largest tobacco companies, which were calculated to have an annual variable cost of €4.55 billion, this would imply an annual cost increase of between €59 million and €68 million for the Big Four. According to the industry, this can be associated to write-offs of non-compliant packs, both of which would also be associated with an EU-wide introduction of pictorial health warnings. Larger costs caused by packaging related legislation were reported in Uruguay. A respondent, commenting on the introduction of graphic warnings that

---

<sup>151</sup> Deloitte (2011), p.24.

<sup>152</sup> Questionnaire response.

<sup>153</sup> One respondent highlighted that the average one-off cost of the introduction of pictorial health warnings could be comparable to the cost of a general brand re-design (€20,000 per SKU) that tends to happen every three years, if health warning size remains the same. If the health warning size increases, the industry reported that one-off costs could exceed (by up to 3.5 times as much) those of a general brand re-design because of the ensuing necessity to also resize logos and engage in a full re-design of the pack

<sup>154</sup> Unlike the Big Four, SMEs states that it is the introduction of full colour pictorial warnings that has the greatest cost impact on costs, as there maybe additional set up printing costs associated with full colour which is not normally used in cigarette packaging.

<sup>155</sup> The estimate is based on the assumption of that company’s variable costs being a proportion of the total industry €5 billion variable costs corresponding to their volume market share. The company specified a total absolute cost change which represents 1.3% of this assumed variable cost figure. For anonymity purposes, because company market shares have been specified elsewhere in the report, we cannot report the company’s estimated absolute cost change due to pictorial warnings.

<sup>156</sup> These figures (1.3% and 1.5%) are rough estimates by the industry related to cost increases in Belgium (in other words if pictorial warnings were introduced, from a baseline of no pictorial warnings), which were extrapolated by the respondents across the EU. The relative similarity between the magnitudes provides a degree of triangulation.

cover 50% of the front and the back of the pack (which was extended to 87% in March 2010), highlighted that two of the four largest global tobacco companies withdrew from the market. The growth of illicit trade was cited as an important factor coupled with trade restrictive regulatory environment.

- **Industry** respondents particularly highlighted the fact that, in addition to these direct costs, there are other, less quantifiable costs to labelling changes (depending on which labelling changes are implemented), such as changes in consumer preferences (e.g. towards illicit cigarettes) and intellectual property considerations, which have hypothetical knock-on effects onto profits and jobs. **However, no studies proving a direct, statistically significant, causal link between health warning size changes and consumer preference/intellectual property were provided.**

#### 4.1.5 Conclusions

Differences in national regulations on tobacco labelling and packaging provides a rationale for intervention. While harmonisation is not viewed negatively by the industry, the consequence of plain packaging both on the industry, on prevalence and illicit trade should be considered.



## 4.2 Flavours and Ingredients

### 4.2.1 Introduction

The tobacco industry has always relied on innovation and product development to increase its sales. This is especially true given the growing restrictions on tobacco advertising, which strengthens the relationship between innovation and sales.<sup>157</sup> **Flavoured cigarettes are one example that characterise developments in tobacco products.**<sup>158</sup>

While there are a number of **definitions for tobacco “ingredients,”**<sup>159</sup> the definition adopted by the European Union describes them as:

“Any substance or any constituent except for tobacco leaf and other natural or unprocessed tobacco plant parts used in the manufacture or preparation of a tobacco product and still present in the finished product, even if in altered form, including paper, filter, inks, and adhesives”.<sup>160</sup>

According to Rodgman (2002a, b and 2004) ingredients are intentionally added to tobacco for three primary purposes: as a humectant<sup>161</sup> (e.g., propylene glycol, glycerol), as a casing material (e.g., liquorice, cocoa), and as a flavorant (e.g., menthol, vanilla).<sup>162</sup> While some of these ingredients, notably humectants, have been regularly used by tobacco manufacturing since the early part of the 20th century; some of the added ingredients occur naturally in tobacco and their addition is considered as an attempt to enhance the flavour.<sup>163</sup> Other types of ingredients, usually added to the filter include burn additives, plasticizers, preservatives, adhesives, dyes, and processing aids.<sup>164</sup>

**Flavourings are used to enhance the taste of tobacco smoke, to make the product more desirable to consumers (or – according to industry- distinguish between products).** According to research commissioned by ASH, the use of sugars, honey, liquorice, cocoa, chocolate and other flavourings make cigarettes more palatable and easier to aspire, particularly to children and the young

<sup>157</sup> Euromonitor (2011): “Tobacco Companies Look to Innovation to Boost Sales”. 20 June 2011

<sup>158</sup> Cigarettes with capsule technology are another example of strong innovation in the industry. This capsules allow smokers to change the taste of cigarettes by popping a small ball of (usually menthol) flavouring in the filter. Euromonitor, 20 June 2011.

<sup>159</sup> Tobacco ingredients are also known as “additives” and occasionally as “constituents”. PMI and Carson Watts Consulting (2011): “Toxicological assessment of cigarettes ingredients”. *Regulatory Toxicology and Pharmacology*. 61: 119-128.

<sup>160</sup> Directive 2001/37/EC of the European Parliament and of the council of 5 June 2001, on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco products. *Official Journal of the European Communities*, L 194, 26-34, 2001

<sup>161</sup> A humectant is a substance that absorbs or helps another substance retain moisture, as glycerol.

<http://dictionary.reference.com/browse/humectant>

<sup>162</sup> Rodgman, A.: (2002a): “Some studies on the effects of additives on cigarette mainstream smoke properties”. I. *Flavorants. Beitr. Tabakforsch. Intl.* 20, 83–103. Rodgman, A. (2002b): “Some studies on the effects of additives on cigarette mainstream smoke properties”. II. Casing materials and humectants”. *Beitr. Tabakforsch. Intl.* 20, 279–299. Rodgman, A. (2004): “Some studies on the effects of additives on cigarette mainstream smoke properties. III. Ingredients reportedly used in various commercial cigarette products in the USA and elsewhere”. *Beitr. Tabakforsch. Intl.* 21, 47–104. Cited in PMI and Carson Watts Consulting (2011).

<sup>163</sup> Rodgman, A. (2004).

<sup>164</sup> PMI and Carson Watts Consulting (2011).

as well as first time users; eugenol and menthol numb the throat so the smoker cannot feel the smoke's aggravating effects. Additives such as cocoa may be used to dilate the airways allowing the smoke an easier and deeper passage into the lungs exposing the body to more nicotine and higher levels of tar<sup>165</sup>.

The addition of flavouring to cigarettes or to cigarillos has created a degree of controversy. It is considered by some stakeholders as alteration that renders the products more attractive for children and young people.<sup>166</sup> As such these stakeholders believe they could become the gateway for such groups to start smoking.<sup>167</sup> As noted in the RAND report "Assessing the Impacts of Revising the Tobacco Products Directive", ingredients such as menthol may act as a local anaesthetic when their concentration is high, and can give the smoker a refreshing feeling while the smoke is inhaled.<sup>168</sup>

**A wide range of cigarettes with characterising flavours<sup>169</sup> are available on the market.** Flavours include **fruit** (berry, cherry, coconut, citrus and watermelon), **sweet flavours** (vanilla cinnamon, chocolate, mint and toffee) **alcohol flavours** (bourbon, piña colada, and margarita),<sup>170</sup> as well as some unusual ones such as black tea, cassis, lemongrass and natural rose oil.<sup>171</sup> **Menthol** is the most common dominant flavour,<sup>172</sup> and data on menthol cigarettes are the most widely available through Euromonitor.<sup>173</sup> Menthol cigarettes are so commonly used in some markets that they are not viewed by all stakeholders in the same way as other flavoured cigarettes.<sup>174</sup> Cigarettes with sweet and fruity characterising flavours are considered by tobacco control experts and one part on the tobacco industry as "candy-like" cigarette targeted to youth, however another part of the tobacco industry considers that this type of cigarettes is consumed only as a third brand smoked occasionally by experienced smokers.<sup>175</sup>

Further insight on product developments in the menthol market can be drawn from the overview of menthol brands<sup>176</sup> available Europe-wide. The table below displays the main brands available in the Member States, and where available, the date in which the new products were launched.<sup>177</sup>

---

<sup>165</sup> Bates, C. ; Connolly, G.N. ; Jarvis, M. (1999). *Tobacco Additives. Cigarette Engineering and nicotine addiction*. Available at: [http://www.ash.org.uk/files/documents/ASH\\_623.pdf](http://www.ash.org.uk/files/documents/ASH_623.pdf)

<sup>166</sup> Speech of John Dalli European Commissioner for Health and Consumer Policy, at the Evening Dinner Debate at the European Parliament on 'Quitting: The way forward'. Brussels, 29 November 2010. Available [http://ec.europa.eu/commission\\_2010-2014/dalli/docs/speech\\_quitting\\_smoking\\_en.pdf](http://ec.europa.eu/commission_2010-2014/dalli/docs/speech_quitting_smoking_en.pdf)

<sup>167</sup> Euromonitor. Trend Watch – Flavoured cigarettes controversy rages on, 23 April 2008.

<sup>168</sup> RAND (2010), page 75, quoting the Danish Cancer Society, 'Tobacco Additives – a Study of the Available Literature', 2008.

<sup>169</sup> Data on flavoured cigarillos are rather limited and mainly qualitative.

<sup>170</sup> Jane Lewis, M. Wackowski, O. (2006): "Dealing with an Innovative Industry: A look at Flavoured Cigarettes Promoted by Mainstream Brand". *American Journal of Public Health*, 96 (2): 244-251. Dachtler, K. (2009): "Pick Your Poison: Responses to the Marketing and Sale of Flavoured Tobacco Products". Tobacco Control Legal Consortium.

<sup>171</sup> Euromonitor. Trend Watch – Flavoured cigarettes controversy rages on, 23 April 2008.

<sup>172</sup> Although cloves - in so-called 'kretek' cigarettes prevalent in Indonesia, have the largest share of a single market. Euromonitor. Trend Watch – Flavoured cigarettes controversy rages on, 23 April 2008

<sup>173</sup> Euromonitor. Trend Watch – Flavoured cigarettes controversy rages on, 23 April 2008. This can also be inferred from all the Euromonitor category briefs consulted.

<sup>174</sup> Euromonitor. Trend Watch – Flavoured cigarettes controversy rages on, 23 April 2008.

<sup>175</sup> Interviews conducted by Matrix with the tobacco industry (December 2011).

<sup>176</sup> Some qualitative data are also available on other flavours. See Table for details.

<sup>177</sup> Data are drawn from 24 Euromonitor category briefings, which however were not available for Cyprus, Luxembourg and Malta.

While some other flavoured products, not mentioned in the Euromonitor reports, might be available across the EU, the overview below provides a broad picture of the flavoured market. The main conclusions are:

- **26 new products (see Table below) were launched between 2009 and 2010 in 16 Member States.**<sup>178</sup> Flavoured cigarettes are a dynamic market that is growing in terms of market share and number of products. While some menthol products existed in the early 2000s, new product development has recently intensified which has been interpreted by industry analysts as the industry's response to its deteriorating operating environment.<sup>179</sup>
- **Menthol is by far the most common flavoured cigarettes available for purchase.** A limited choice of other flavours are available in Austria, Bulgaria, Czech Republic, Germany, Greece, Italy, Latvia, Poland, Netherlands, Portugal and Slovakia.
- **The four largest tobacco companies are also the most significant operators in the flavoured market** but a number of small independent companies have entered this market in Austria, Bulgaria, the Czech Republic, Italy, Portugal and Slovakia.
- **With a few exceptions such as Black Devil, Kent menthol and Marlboro menthol, most flavoured products are country specific.** While the same company might offer menthol products in different countries, they enter each national market with different brands. For example: British American Tobacco offers Prince K in Denmark, Viceroy Superslims and Vogue Frisson in Poland and Pall Mall Menthol in Sweden. Cross-border trade at brand level is therefore limited to a restricted number of products.

---

<sup>178</sup> Another product was also launched in 2007 in Greece.

<sup>179</sup> Euromonitor. New product developments in tobacco – Euromonitor International review. 30 December 2009.

**Table 12: Flavoured Cigarettes Market and Product Developments 2006-2011**

| Brand                         | Company  | Country        | Flavour                                |
|-------------------------------|--|----------------|--|
| Surfside flavoured cigarettes | Continental Tobacco Corporation*                   | Austria        | Cuba Libre, Mojito and Tequila Sunrise |
| Marlboro Menthol              | Philip Morris                                      | Belgium        | Menthol                                |
| Eva Slims Menthol             | Bulgar Tabac*                                      | Bulgaria       | Menthol                                |
| Femina Menthol                | Bulgar Tabac*                                      | Bulgaria       | Menthol                                |
| GD Menthol                    | Bulgar Tabac*                                      | Bulgaria       | Menthol                                |
| Karelia                       | Karelia Tobacco Co Inc                             | Bulgaria       | Menthol                                |
| New Line Menthol Slim         | Bulgar Tabac                                       | Bulgaria       | Menthol                                |
| Slim Agenda Vanilla           | House of Prince SA <sup>180</sup>                  | Bulgaria       | Vanilla <sup>181</sup>                 |
| Kiss - Fresh Apple            | DanCzek Teplice as*                                | Czech Republic | Fresh apple flavour                    |
| LD Menthol                    | JT International                                   | Czech Republic | Menthol                                |
| Marlboro Fresh                | Philip Morris                                      | Denmark        | Menthol                                |
| Prince K                      | British American Tobacco                           | Denmark        | Menthol                                |
| Kent Surround Menthol         | British American Tobacco Estonia AS                | Estonia        | Menthol                                |
| Marlboro White Mint           | Philip Morris Eesti OÜ                             | Estonia        | Menthol                                |
| Vogue Menthe                  | British American Tobacco                           | Estonia        | Menthol                                |
| Kent Surround Black Menthol   | British American Tobacco Finland Oy                | Finland        | Menthol                                |
| Smart Super Menthol           | Imperial Tobacco Finland Oy                        | Finland        | Menthol                                |
| JPS Ice                       | Imperial Tobacco France SA                         | France         | Menthol                                |
| Marlboro Blue Fresh           | Philip Morris GmbH                                 | Germany        | Menthol                                |
| Sweetie                       | Planta Tabak-Manufaktur Dr Manfred Ober. GmbH & Co | Germany        | Strawberry                             |
| R1 Slim Line Vanilla          | Imperial Tobacco Hellas SA                         | Greece         | Vanilla                                |
| Slim Agenda Coffee            | House of Prince SA                                 | Greece         | Coffee                                 |
| Consulate Menthol             |  | Ireland        | Menthol                                |
| City Vibes                    | Johannes Nieboer Tobacco Company*                  | Italy          | Mixed flavours                         |
| Country Vibes                 | Johannes Nieboer Tobacco Company*                  | Italy          | Mixed flavours                         |

<sup>180</sup> This Danish company was bought by British American Tobacco in 2008

<sup>181</sup> This product was also launched in Greece but the product failed. Euromonitor. Cigarettes in Greece. Category Briefing, 17 September 2010.

| Brand                        | Company                               | Country        | Flavour                    |
|------------------------------|---------------------------------------|----------------|----------------------------|
| Kent Surround Menthol        | British American Tobacco Latvia SIA   | Latvia         | Menthol                    |
| Slim Agenda                  | House of Prince SA                    | Latvia         | Menthol Vanilla and Coffee |
| Vogue menthol                | British American Tobacco              | Latvia         | Menthol                    |
| Kent Menthol                 | British American Tobacco Lietuva UAB  | Lithuania      | Menthol                    |
| L&M Triple Mint              | Philip Morris Lietuva UAB             | Lithuania      | Menthol                    |
| Country Vibes                | Johannes Nieboer Tobacco Company*     | Netherlands    | Mixed flavours             |
| Black Devil                  | Tobacco Trading International Sp zoo* | Poland         | Caramel and Chocolate      |
| Camel Menthol                | JTI Polska Sp zoo                     | Poland         | Menthol                    |
| Pink Elephant <sup>182</sup> | Tobacco Trading International Sp zoo* | Poland         | Vanilla                    |
| Sunday's Fantasy             | Tobacco Trading International Sp zoo* | Poland         | Pipe tobacco aroma         |
| Viceroy Superslims           | British American Tobacco Polska SA    | Poland         | Menthol                    |
| Vogue Frisson                | British American Tobacco Polska SA    | Poland         | Menthol                    |
| Black Devil                  | Heupink & Bloemen*                    | Portugal       | Caramel and Vanilla        |
| Karelia                      | Karelia Tobacco Co Inc*               | Portugal       | Menthol                    |
| Pink Elephant                | Heupink & Bloemen*                    | Portugal       | Flavoured tobacco          |
| SG Menthol                   | Philip Morris International Inc       | Portugal       | Menthol                    |
| Black Devil                  | Heupink & Bloemen Tabak*              | Slovakia       | Caramel and Vanilla        |
| Marlboro Fresh               | Philip Morris AB                      | Sweden         | Menthol                    |
| Pall Mall Menthol            | British American Tobacco Sweden AB    | Sweden         | Menthol                    |
| Chesterfield Menthol         | Phillip Morris                        | United Kingdom | Menthol                    |

Source: Euromonitor Category Briefings. \*Small independent companies which do not belong to any of the Big Four.

<sup>182</sup> Pink Elephant cigarettes used to have a vanilla flavour and were marketed rolled in pink paper. The vanilla characterising flavouring was removed around four years ago (with the exception on one market) and the pink paper has been replaced with white paper.

It is important to note that while the ingredients-related policy options under consideration by the European Commission as part of its review of the TPD could impact on the market for these products specific options related to consumer information could have an additional impact. For example, an option under “consumer information” that sought to “fully standardise the tobacco packaging (plain package)” could particularly impact on such a market given that they currently utilise targeted and specific marketing strategies including particular package designs, which would not be allowed if such a policy option was taken forward.

#### 4.2.2 Baseline Regulatory Position

An increasing number of countries are regulating ingredients. The WHO Framework Convention on Tobacco Control (WHO FCTC) guidelines adopted in Uruguay in November 2010 recommend that countries “restrict or prohibit” flavourings that increase palatability, have colouring properties, create the impression of health benefits or are associated with energy and vitality<sup>183</sup>. For example, in the following jurisdictions have regulations in place regarding flavours:

- France
- UK
- United States
- Australia
- Canada

In several Member States there exist national regulations on positive and/or negative lists of ingredients. **In France, flavoured cigarettes which flavouring additives exceed 0.05% of their content have been banned on 29 July 2009 by article 25 of the “loi Bachelot”.** These cigarettes are considered by a number of stakeholder groups to be particularly attractive for young people. They are called in France “*cigarettes bonbons*” (candy cigarettes)<sup>184</sup>. The threshold of 0.05% is set by a decree of December 30, 2009. The ban came into place after the commercialisation in 2005 of chocolate and vanilla flavoured cigarettes with a very original presentation.

Another example is the **UK**, where the Department of Health published in 2003 the list of permitted additives to tobacco products in the United Kingdom, setting up limits to the content of such additives. **For example, cigarettes marketed in the UK cannot contain more than 0.1% of vanilla additive, 5% cocoa, 1% coffee extract and 0.15% cognac oil**<sup>185</sup>.

**In the US, cigarettes containing certain characterising flavours were banned in September 2009.** The ban was authorised by the new Family Smoking Prevention and Tobacco Control Act of 22 June 2009 that gives the FDA the authority to regulate the manufacture, distribution, and marketing of tobacco products to protect public health. The FDA considers that the ban on certain characterising flavoured cigarettes highlights the importance of reducing the number of children who start to smoke,

<sup>183</sup> Product Regulation: The FCTC Commitments. The Tobacco Control Treaty – FCTC. Available at:

[http://www.fctc.org/index.php?option=com\\_content&view=article&id=88&Itemid=92](http://www.fctc.org/index.php?option=com_content&view=article&id=88&Itemid=92) [Accessed November 2011]

<sup>184</sup> Comité national contre le tabagisme. Jeunes et tabac. Available at: <http://www.cnct.fr/tous-les-dossiers-73/jeunes-et-tabac-1-33.html> [Accessed November 2011]. In their note, the Comité national contre le tabagisme specifically mentions cigarettes Pink Elephant and Black Devil.

<sup>185</sup> Department of Health (2003). *Permitted Additives to Tobacco Products in the United Kingdom*. Available at:

<http://www.advisorybodies.doh.gov.uk/scoth/technicaladvisorygroup/additiveslist.pdf> [Accessed November 2011]

and who become addicted to tobacco products<sup>186</sup>. According to the act, “a cigarette or any of its component parts (including the tobacco, filter, or paper) shall not contain, as a constituent (including a smoke constituent) or additive, an artificial or natural flavour (other than tobacco or menthol) or an herb or spice, including strawberry, grape, orange, clove, cinnamon, pineapple, vanilla, coconut, liquorice, cocoa, chocolate, cherry, or coffee, that is a characterizing flavour of the tobacco product or tobacco smoke”.

**The FDA banned flavoured cigarettes on the grounds that these products are especially attractive to young people.** According to the FDA, they are widely considered to be “starter” products and scientific research has found that children and young people wrongly think flavoured tobacco products are safer and less addictive than regular tobacco products.

In the “Flavoured Tobacco Product Factsheet”, the FDA presents the following data on flavoured tobacco and initiation of smoking among young people.<sup>187</sup>

| Flavoured tobacco factsheet <sup>188</sup> |  |
|--|--|
| Youth Data                                 | <ul style="list-style-type: none"> <li>• In 2004, 22.8% of 17-year-old smokers reported using flavoured cigarettes over the past month, as compared to 6.7% of smokers over the age of 25.</li> <li>• A poll conducted in March 2008 found that one in five youngsters between the ages of 12 and 17 had seen flavoured tobacco products or ads, while only one in 10 adults reported having seen them.</li> <li>• According to one study of youth smokers between the ages of 13 and 18, 52% of smokers who had heard of flavoured cigarettes reported interest in trying them, and nearly 60% thought that flavoured cigarettes would taste better than regular cigarettes.</li> <li>• Studies of youth expectations around other flavoured tobacco products like bidis and hookahs have found that young smokers report choosing flavoured products over cigarettes because they “taste better” and are perceived to be “safer.”</li> </ul> |
| Tobacco Company Marketing                  | <ul style="list-style-type: none"> <li>• Industry documents reveal clear patterns of designing flavoured cigarettes to target youth.</li> <li>• Advisors to one company developed concepts for a “youth cigarette,” including cola and apple flavours, and a “sweet flavour cigarette,” stating, “It’s a well-known fact that teenagers like sweet products. Honey might be considered.”</li> <li>• A memo from another company instructed workers to “make a cigarette which is obviously youth oriented. This could involve cigarette name, blend, flavour and marketing technique....for example, a flavour which would be candy-like but give the satisfaction of a cigarette.”</li> <li>• Other internal documents describe sweetened products as “...for younger people, beginner cigarette smokers, teenagers . . . when you feel like a light</li> </ul>   |

<sup>186</sup> Flavoured Tobacco Product Fact Sheet. FDA. Available at: <http://www.fda.gov/TobaccoProducts/ProtectingKidsfromTobacco/FlavoredTobacco/default.htm> [Accessed November 2011]

<sup>187</sup> Flavoured Tobacco Product Fact Sheet. FDA. Available at: <http://www.fda.gov/TobaccoProducts/ProtectingKidsfromTobacco/FlavoredTobacco/ucm183198.htm> [Accessed November 2011]

<sup>188</sup> Flavoured Tobacco Product Fact Sheet. FDA. Available at: <http://www.fda.gov/TobaccoProducts/ProtectingKidsfromTobacco/FlavoredTobacco/ucm183198.htm> [Accessed November 2011]

|                |  |
|----------------|--|
|                | smoke, want to be reminded of bubble-gum.”   |
| Health Effects | <ul style="list-style-type: none"> <li>All tobacco products, including flavoured tobacco products are as addictive and carry the same health risks as regular tobacco products.</li> </ul> |

#### 4.2.3 Single market Considerations

As highlighted in the “country specificities” section above, some Member States have imposed different limits on the amount of flavours allowed in tobacco products. Such differences could hinder intra-EU trade, as producers would need to change the configuration of their product to match the national specification. Interviews with small tobacco manufacturers, who produce, among other things, distinctive flavoured cigarettes, highlighted that the costs of complying with national regulations are not the main problem. In fact, configurations such as those in France, requiring less flavour, might actually lead to cost savings. However, it is the loss in market position as a consequence of the product change that impacts on consumer choice that could negatively affect businesses.

#### 4.2.4 Industry Response

A number of issues were highlighted by the tobacco industry in relation to ingredients:

- Link between the option and the desired outcome:** the industry questioned the extent to which a ‘blanket’ limit or a ban on ingredients such as cocoa, would eliminate candy flavoured cigarettes from the market. Industry contends that some ingredients, are added in very small quantities, thus they do not create a sweet, chocolate-like or fruity taste in the smoke.
- Industry representatives stated that there are a number of reasons for the introduction of flavour changes to cigarettes. One company stated that changes are usually driven by natural tobacco crop variations, due to variations in raw materials necessitating composition changes in the end product. More fundamental composition changes vary. One company stated that 50% of its brands will not undergo composition changes in the foreseeable future. A second stated that blends change continuously, because tobacco is a natural product; and that the composition is changed to maintain product integrity and meet consumers’ expectations. A third company reported a number of reasons for blend changes, including the necessity to fulfil legislative requirements despite year-on-year crop variations, to manage a supplier change of an ingredient or non-tobacco component, to standardise the brand against a new making machine, or to reduce the overall complexity and diversity of SKUs.
- In the EU, a ban on ingredients that was similar in nature to that introduced in France would not affect any of the larger manufacturers because it was directed specifically at two brands with overt candy/confectionary flavour products which they do not manufacture or market.
- In the EU, ban on ingredients such as that introduced in Canada would entail changing the composition of at least 76% of the market (in volume terms), which consists of American blend cigarettes. Industry respondents believed that such a flavour ban would have a consequent impact in terms of a reduction in demand for Burley and Oriental tobacco, disproportionately impact on tobacco growers within the EU.<sup>189</sup>

<sup>189</sup> Burley and Oriental tobacco growers cannot automatically shift to Virginia tobacco growing.



- Tobacco companies stated that ingredients changes had both on-going and one off operational cost implications. These ranged from a full redevelopment of the tobacco blend, consumer research, manufacturing change to satisfy consumers' demand<sup>190</sup> as well as change leaf sources. They stated that the level of cost would be dependent on the type and scale of change, and could necessitate a re-blend, a cigarette design change and significant testing and analysis. One company indicated that a single regulation across Europe might be less expensive than member-state-level changes with different limits across each of the EU member states, as long as any ingredient regulation is proportionate and scientifically-based. Another company emphasised that the main impact of legislation would not be the operational one-off costs, but rather the consumer demand shifts, market distortions, disadvantages for some tobacco companies (depending on product portfolio), flows towards illicit trade (see below) and negative impact on employment (for retailers where such change resulted in an increase in the illicit trade and for tobacco growers due to reduced demand for Burley and Oriental tobacco).
- **Illicit market:** tobacco industry representatives believe that any change in product specification or a wider product ban would have a number of consequences both intended and unintended. Consumers could choose to switch to different products, to stop smoking, or to turn to the illicit market. It is important to note that only the "cessation" option fulfils a public health goal. The industry believes that more research into the behaviour of smokers when product availability changes, is needed to understand which is the most likely scenario to occur.

#### 4.2.5 Conclusions

Differences in national regulations on flavours and ingredients provide a rationale for intervention.

---

<sup>190</sup> Two companies reported that in order to accommodate differing consumer tastes in different countries, different blends are sometimes used in the same brands (naming one brand which is American Blend in one country and Virginia Blend in another).

## 4.3 Non-Combustible Tobacco Products

### 4.3.1 Introduction

Smokeless tobacco products can be disentangled into three broad categories:<sup>191</sup>

- oral tobacco (snus);
- chewing tobacco; and
- nasal tobacco (dry snuff).

Data presented in the market overview for these products show how consumption of smokeless product reflects geographical, social and ethnic specificities, e.g. snus is widely used by Scandinavian males, specific types of chewing tobacco are used among people of South Asian origin, Danish chewing tobacco is primarily consumed by Danish males<sup>192</sup> and German dry snuff tends to be marketed towards young males<sup>193</sup>.

### 4.3.2 Baseline Regulatory Position

Regulation of smokeless tobacco varies significantly across the EU. For instance while chewing and nasal tobacco are legal in the EU; the marketing of oral tobacco (Swedish snus) is prohibited by the TPD, with the exception of Sweden. Article 8 states that “Member States shall prohibit the placing on the market of tobacco for oral use.....”, where tobacco for oral use is defined by article 2.4 as “all products for oral use, except those intended to be smoked or chewed, made wholly or partly of tobacco, in powder or particulate form or in any combination of these forms – particularly those presented in sachet portions or porous sachets – or in a form resembling a food product”. Apart from the ban of oral tobacco the only legal requirements for smokeless is that such products need to carry a warning label stating that “This product can damage your health and is addictive”<sup>194</sup> and that a listing of ingredients used in these, as well as all other, tobacco products must be reported annually to the local governments.

### 4.3.3 Single market considerations

From a single market perspective, the current regulatory framework bans snus but currently permits the sale of other forms of smokeless tobacco. Given the evident similarities between chewing tobacco and snus (i.e. that both are consumed orally without combustion), the differential treatment appears inconsistent. With regard to oral tobacco three Member States had already banned the product on health grounds before a homogenous approach was introduced through the EU wide ban in 2001.

### 4.3.4 Industry Response

The focus of the industry response to Smokeless tobacco products was on the single issue of snus, where representatives of the snus industry stated that they felt there to be a need to Evaluate the evidence addressing the health risk of snus in itself and *vis-à-vis* other smokeless products.<sup>195</sup>, to

---

<sup>191</sup> Snuff comprises both oral and nasal tobacco. In doing so this category combines together both banned and allowed substances.

<sup>192</sup> ‘Smokeless Tobacco in Denmark’ (Euromonitor Category Briefing, 28 Jul 2011)

<sup>193</sup> ‘Smokeless Tobacco in Germany’ (Euromonitor Category Briefing, 5 Oct 2011)

<sup>194</sup> Directive 2001/37/EC

<sup>195</sup> In 2008, the Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) evaluated the health effects of smokeless tobacco products (STP) with particular attention to tobacco for oral use, moist snuff (snus). The report (available at [http://ec.europa.eu/health/ph\\_risk/committees/04\\_scenihr/docs/scenihr\\_o\\_013.pdf](http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_013.pdf)) suggests that the harm associated with

evaluate the evidence addressing snus as a gateway to smoking but also a substitute for smoking<sup>196</sup> and to assess Intra—EU trade issues associated with the manufacture and sale of snus in Sweden .

#### 4.3.5 Conclusions

The snus industry clearly is in favour of lifting the ban on oral tobacco and believes that status quo is problematic. On the other hand, lifting the ban on oral tobacco must be considered in the regulatory context where three Member States had already banned oral tobacco before the EU wide ban was introduced. At least these Member States may want to keep their bans which would raise difficult regulatory and single market questions. In addition, such an option needs to be considered in light of the adverse effect and addictive character of all STP (SCENHIR 2008). Status quo also appears problematic from a regulatory perspective as it would maintain differential treatment of various STP categories.

---

STP use varies in relation to different tobacco-related diseases, and outcomes differ between STP. The footnote should refer to the relative health risk of snus/STP and indicate that the Report suggests that all STP have adverse health effects and are addictive. The bullet point above is not about comparing cigarettes and STP.

<sup>196</sup> According to SCENIHR “It is not possible to extrapolate future patterns of tobacco use across countries. In particular, it is not possible to extrapolate the trends in prevalence of smoking and oral tobacco use if it were made available in an EU-country where it is now unavailable due to societal and cultural differences”, page 5 and 122.

## 4.4 Nicotine Containing Products ('e-cigarettes' and other alternative nicotine delivery mechanisms);

### 4.4.1 Introduction

**The market for nicotine containing products (and more specifically inhaled smokeless nicotine products such as e-cigarettes and smokeless cigarettes which are not battery operated) is growing rapidly with an increasing number of brands, importers and vendors.** Since first entry onto the European market in the mid-2000s, the market has developed into a £100m business with at least 50 companies operating just in the UK. The total EU market is likely to be worth between €400 and €500 million.<sup>197</sup>

**There is significant uncertainty regarding the potential health effects of electronic cigarettes and nicotine products with particular concerns regarding the nicotine liquid used in electronic cigarettes, sold in flasks for e-cigarettes smokers to recharge their cartridges.**

In most e-cigarettes, users can select their desired nicotine level typically between 0mg ("zero") to 18mg ("high") but some brands such as "e-cig" owned by the Shanghai based E-CIG Technology Inc. offers up to 48mg<sup>198</sup>. These levels exceed the poisonous level of nicotine for UK standards,<sup>199</sup> which is 7.5%, and France, which is 2%.<sup>200</sup> In addition, there are no agreed standards of what "high", "medium" and "low" mean, as these levels are not the same for every brand of e-liquid. Studies cited by the FDA have found that 0mg cartridges labelled as nicotine-free contained nicotine<sup>201</sup>. Other issues of concerns are the quality of the nicotine used by some manufacturers and factory contaminants as one FDA study found one e-cig cartridge contained 1% diethylene glycol. Diethylene glycol, an ingredient used in antifreeze, is toxic to humans. Also, LACORS (the Local Authorities Coordinators of Regulatory Services in the UK), has raised concerns about the need for adequate hazard labeling of e-cigarettes and e-liquids in respect of their nicotine content and the provision of child resistant packaging for the nicotine cartridges and bottles<sup>202</sup>.

The long term effects of smoking e-cigarettes is also uncertain. While preliminary tests of the original e-cigarettes produced by Ruyan suggest that they are less harmful than cigarettes, there are now many different models on the market that have not been tested and the extent of nicotine uptake and the safety of e-cigarettes have yet to be established. Furthermore, tests by UK trading standards officers have found that some e-cigarettes sold in the UK are in contravention of product safety regulations<sup>203</sup>. In 2009 analyses of e-cigarettes undertaken by LACORS, the UK government body responsible for Trading Standards, found that some devices contained more than 20% nicotine, a

---

<sup>197</sup> Red Kiwi own estimates. Interview with Red Kiwi 16 December 2012

<sup>198</sup> Information provided by Kind Consumer

<sup>199</sup> The 1972 Poisons Act (Information available in "A guide to The Poisons Act 1972"

[http://www1.somerset.gov.uk/static/poisons\\_leaflet.pdf](http://www1.somerset.gov.uk/static/poisons_leaflet.pdf))

<sup>200</sup> [http://www.afssaps.fr/Infos-de-securite/Communiques-Points-presse/L-Afssaps-recommande-de-ne-pas-consommer-de-cigarette-electronique-Communique/\(language\)/fre-FR](http://www.afssaps.fr/Infos-de-securite/Communiques-Points-presse/L-Afssaps-recommande-de-ne-pas-consommer-de-cigarette-electronique-Communique/(language)/fre-FR)

<sup>201</sup> The summary of FDA analysis on e-cigarettes is available at:

<http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm173146.htm>

<sup>202</sup> LACORS response to MHRA consultation. <http://www.mhra.gov.uk/home/groups/es-policy/documents/publication/con102952.pdf>

<sup>203</sup> ASH (2010). Electronic cigarettes. Briefing Paper. Available at: [http://www.ash.org.uk/files/documents/ASH\\_715.pdf](http://www.ash.org.uk/files/documents/ASH_715.pdf)

quantity in excess of the 7.5% allowed under the Poisons Act<sup>204</sup>. In France, the poisonous level of nicotine is 2%.

**However, there is also emerging evidence suggesting that smoking (or “vaping”) electronic cigarettes are less hazardous to health than smoking tobacco and that there is potential in the use of e-cigarettes as a harm-reduction approach to smoking.** In the UK, NICE is developing new guidance on tobacco harm reduction as a means reducing the illnesses and deaths caused by smoking tobacco, among people who smoke and those around them. The changes in behaviour they are considering might involve completely or partially substituting the nicotine from smoking with nicotine from less hazardous sources that do not contain tobacco (e.g. pharmaceutical nicotine and electronic cigarettes). Also in the UK, the Government's Cabinet Office's Behavioural Insight Team believes the current approach to smoking, which they characterise as a 'quit or die' approach, is not working. In its recently published first annual report, the unit proposed the alternative approach of managing nicotine addiction as a means of helping entrenched smokers to replace their combustible tobacco intake by alternative nicotine delivery products<sup>205</sup>. Similarly in the United States, public health professors are, with caution, endorsing some of the harm reduction claims of the e-cigarette industry and they acknowledge that banning e-cigarettes altogether while cigarettes are still broadly available may result in a missed opportunity for reducing the harm caused by tobacco<sup>206</sup>. Red Kiwi have specified that the current uncertainty over the regulatory status of e-cigarettes is holding back many interested firms from joining the market, because they are uncertain about future prospects. In particular, their view remains that either regulation as a tobacco product or as a consumer product would be preferential from both an industry perspective and a harm reduction perspective.<sup>207</sup>

#### 4.4.2 Baseline Regulatory Position

**Regulation of nicotine products differs widely across Member States and it is difficult to get a clear picture of the regulatory status of electronic cigarettes in different Member States.** The area is moving rapidly and national authorities decide on a case-by-case basis whether these products should be regarded as medicinal products by function. In some countries e-cigarettes are banned, in other countries they are not subject to any specific regulation (GPSD applies in any case). In countries where some form of specific regulation exists, e-cigarettes are regulated generally as pharmaceutical products, sometimes as tobacco e.g. in the UK<sup>208</sup>). The majority of nicotine products

<sup>204</sup> <http://www.ecigarettedirect.co.uk/research/lacors-electronic-cigarette.html>

<sup>205</sup> Cabinet Office 2011. *Behavioural Insight Team. Annual update 2010–11*. Available at:

[http://www.cabinetoffice.gov.uk/sites/default/files/resources/Behaviour-Change-Insight-Team-Annual-Update\\_acc.pdf](http://www.cabinetoffice.gov.uk/sites/default/files/resources/Behaviour-Change-Insight-Team-Annual-Update_acc.pdf)

<sup>206</sup> Information available at: <http://www.ecigarettedirect.co.uk/interviews/electronic-cigarette-interviews.html>

<sup>207</sup> Stakeholder interview with Red Kiwi

<sup>208</sup> According the UK's Medicines and Healthcare Regulatory Authority (MHRA) “ there are a number of products on the market such as nicotine-containing electronic cigarettes claiming to contain nicotine that are widely and easily available but are not licensed medicines. Currently, any Nicotine Containing Product (NCP) that claims or implies that it can assist in giving up smoking is considered by the MHRA to be a medicinal product. This approach has allowed NCPs that do not make such claims to be used and sold without the safeguards built into the regulation of medicinal products” (see

<http://www.mhra.gov.uk/home/groups/es-policy/documents/publication/con111573.pdf>). As long as the products are not marketed as an aid to stop smoking, the MHRA has ruled that certain brands of e-cigarettes cannot be classified as medicinal products and therefore do not fall under their remit (<http://www.smokefreeaction.org.uk/files/docs/E-cigs.pdf>). Therefore, e-cigarettes are subject to general consumer protection laws and it is the responsibility of trading standards officers to rule on their safety. This means that the equipment sold online undergo some quality control under the general product safety legislation and the Chemicals (Hazard Information & Packaging for Supply) Regulations 2002 (CHIP) & LACORS (the Local

manufacturers position themselves as “leisure products” advocating regulation under trading standards with a limited number of companies investing in steps (financial and public affairs) to acquire a medicinal license.

### **Regulation of e-cigarettes in the United States**

In the United States, both tobacco products and drugs and devices fall under the regulation of the same agency, the Food and Drug Administration (FDA). The Family Smoking Prevention and Tobacco Control Act of 2009 (Tobacco Control Act), which amends the Federal Food, Drug, and Cosmetic Act (FD&C Act), was enacted on June 22, 2009, providing the Food and Drug Administration (FDA) with the authority to regulate “tobacco products.” The FD&C Act, as amended by the Tobacco Control Act, defines the term “tobacco product,” in part, as any product “made or derived from tobacco” that is not a “drug,” “device,” or combination product under the FD&C Act.

Under the FD&C Act, the definition of “drug” includes articles intended: (1) for use in the diagnosis, cure, mitigation, treatment or prevention of disease, or (2) to affect the structure or any function of the body. Similarly, “device” is defined to include articles intended: (1) for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, or (2) to affect the structure or any function of the body.

Between 2008 and 2010, the FDA determined that certain electronic cigarettes (e-cigarettes) were unapproved drug/device combination products and detained and/or refused admission to those offered for import by Sottera, Inc. and other manufacturers. Sottera, Inc. challenged that determination in court.

**The U.S. Court of Appeals** for the D.C. Circuit, in *Sottera, Inc. v. Food & Drug Administration*, 627 F.3d 891 (D.C. Cir. 2010), recently **issued a decision with regard to e-cigarettes and other products “made or derived from tobacco” and the jurisdictional line that should be drawn between “tobacco products” and “drugs,” “devices,” and combination products**, as those terms are defined in the FD&C Act. The court held that e-cigarettes and other products made or derived from tobacco can be regulated as “tobacco products” under the Act and are not drugs/devices unless they are marketed for therapeutic purposes.

**The government has decided not to seek further review of this decision, and therefore the FDA will comply with the jurisdictional lines established by Court.** Under the Tobacco Control Act, “tobacco products” are subject to a number of controls. For example, it prohibits the marketing of a “tobacco product” in combination with any other article or product regulated under the FD&C Act (including a drug, biologic, food, cosmetic, medical device, or a dietary supplement). FDA has already issued a draft guidance that addresses the status of such products.

**FDA plans to take other regulatory steps to govern all “tobacco products” and all other products made or derived from tobacco.** For example, the additional tobacco product categories would be subject to general controls, such as registration, product listing, ingredient listing, good manufacturing practice requirements, user fees for certain products, and the adulteration and

---

Authorities Coordinators of Regulatory Services). The MHRA is considering whether e-cigarettes should be regulated as medicinal products, and doing so is their preferred approach. Nonetheless, before making that decision, the organisation has run a public consultation on the issue. The MHRA recently communicated its decision to undertake further scientific and market research to better understand the actual use of existing nicotine products in the marketplace and their effect on smoking cessation, as well as to model the potential impact of regulating these products under medicines regulation on public health outcomes. A final decision on the regulation of nicotine containing products is expected for spring 2013.

misbranding provisions, as well as to the premarket review requirements for “new tobacco products” and “modified risk tobacco products.” The FDA is also considering whether to issue a guidance and/or a regulation on “therapeutic” claims<sup>209</sup>.

### Costs of marketing authorisation

In the absence of any study or data source providing information on the costs of marketing authorisation of medicinal products for human use across the entire EU, the cases of the UK, Netherlands, Denmark and Germany have been specifically researched as they are most commonly used as Reference Member States<sup>210</sup> when seeking EU-wide marketing authorisation through Decentralised Procedure.<sup>211</sup> In addition, according to our research of the e-cigarettes market in Europe, the UK, Netherlands and Germany are among the most developed markets for electronic cigarettes and therefore it is likely that marketing authorisation for this type of product will be sought in these countries if authorisation becomes a requirement. In the UK, the competent authority, the MHRA, has already consulted stakeholders on this topic and e-cigarette vendors are awaiting the decision.

In the letter published by the UK’s Medicines and Healthcare Regulatory Authority (MHRA) to explain their consultation on the regulation of nicotine containing products, **the organisation estimates that the cost for e-cigarettes manufacturers choosing to apply for a marketing authorisation (MA) would be around £40,000 (€47,230)**<sup>212</sup>. According to the MHRA, the applications would be regarded as abridged complex applications, currently attracting a fee of £28,780 (€33,897). In addition, the manufacturer would pay for the licence, which currently attracts a fee of £3,027 (€3,575). Manufacturers would also pay an annual cost for maintaining the MA, which includes an annual periodic fee of £452 (€534), inspection fees at a daily rate of £2,562 (€3,025) (assuming an average inspection visit of 2 days), and a General Sales List annual periodic fee of £424 (€500). There may also be a consultancy fee for putting the application together and then on a yearly basis for conducting regulatory affairs/pharmacovigilance on behalf of the manufacturer. The MHRA assumes an hourly rate of £60 (€70.85) and that an average of 5 days work per year will be needed. Manufacturers would also pay other administrative costs, according to the MHRA<sup>213</sup>.

**According to e-cigarettes brands, the cost of the MA would be actually much higher.** In their response to the MHRA consultation, the e-cigarette company Envape Ltd estimates that the cost of the MA would be considerably higher<sup>214</sup>. They estimate that the cost would be approximately £200,000 (€236,170) because, in addition to the costs identified by MHRA, they will incur in the costs of human pharmacokinetic studies, the costs of preparing the application’s submissions and other project management costs. Envape agrees with the MHRA that there is a need to regulate the e-cigarette market but they propose to give two years to companies to comply instead of 21 days as

<sup>209</sup> Information available at: <http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm252360.htm>

<sup>210</sup> HMA MRI European Product , <http://www.hma.eu/mri.html>

<sup>211</sup> The Decentralised Procedure is for applicants who wish to market a product in various EU countries and for which the product has not yet received an authorisation in any EU country.

<http://www.mhra.gov.uk/Howweregulate/Medicines/Licensingofmedicines/Marketingauthorisations/DecentralisedProcedureDCP/index.htm>

<sup>212</sup> Information available at: <http://www.mhra.gov.uk/home/groups/es-policy/documents/publication/con065618.pdf>

<sup>213</sup> More information on MHRA fees available at:

<http://www.mhra.gov.uk/Howweregulate/Medicines/Licensingofmedicines/Feesformedicinesbloodestablishmentsandbloodbanks/index.htm#11> [Accessed December 2011]

<sup>214</sup> Information available at: <http://www.mhra.gov.uk/home/groups/es-policy/documents/publication/con094076.pdf>

proposed by the Authority. They would also prefer that a less onerous and less complex regulatory approach was taken.

ECCA UK, the British e-cigarette consumer association, are against regulating e-cigarettes as medicinal products and also estimates that the cost of a MA would be much higher than the cost estimated by MHRA and they think **e-cigarette companies would have to pay approximately £500,000 (€590,425) for every product they want to place in the market.**

Although the anti-smoking organisation ASH UK does not question the MA costs estimated by MHRA, in its response to the consultation, **ASH agrees that the cost of submitting a product to gain marketing authorisation could be prohibitive for some manufacturers, resulting in a reduction in the number of products available, and thereby limiting consumer choice**<sup>215</sup>. ASH also considers that regulation might stifle innovation if the costs of authorising new products are too high. They think this would run counter against the Government's aim of increasing uptake of alternative nicotine products as part of its harm reduction strategy. They consider that the period for licensing should be at least one year and a simplified authorisation process should be adopted for all products comparable in speed and delivery to existing licensed nicotine replacement therapy products.

The example of the UK is presented in this report as it has been specified by the MHRA as the authorisation cost for nicotine containing products in the consultation document. It is difficult to compare the MA fees among different countries because the others do not specify how nicotine containing products are classified in their systems. Also, e-cigarettes may also require a medical device authorisation as they are electronic devices delivering nicotine. In addition, manufacturers may incur additional costs related to the submission of the application for the MA and clinical tests required by the regulators.

#### 4.4.3 Single market considerations

From a single market perspective, there are two primary problems with the current regulatory framework regarding electronic cigarettes and other nicotine containing products:

1. The lack of a common regulatory framework in the EU creates significant inconsistencies in terms of the sales channels of this type of products although, e-cigarettes appear to be available in most EU countries either in shops, pharmacies or online (intra-EU trade).
2. The lack of a common regulatory framework for these products and the absence of agreed quality and safety standards in most but not all MS also leave some consumers more unprotected than others in the single market.

---

<sup>215</sup> Information available at: <http://www.mhra.gov.uk/home/groups/es-policy/documents/publication/con102948.pdf>



#### 4.4.4 Industry Response

The table below shows the main considerations to be taken into account under different regulatory options.

**Table 13: Regulatory options for nicotine products in Europe**

| Regulation                                     | Health claim   | Example   | Control measures  | Product availability   | Considerations in relation with e-cigarettes  |
|--|--|---|---|--|---|
| Licensed Medicinal product                     | Cut down to quit<br>Temporary abstinence<br>Harm reduction (in some Member States)     | NRT products such as, inhalator, nasal spray, gum, patches, tablets, lozenges | Marketing Authorisation (MA)  | Pharmacy (prescription), General Sales List (GSL) medicines<br>OTC in pharmacies, supermarkets and other retail outlets without the supervision of a pharmacist <sup>216</sup> | Lack of evidence base to be considered NRT  |
| Consumer good – self regulation <sup>217</sup> | Leisure product (no claim that product can assist in the cessation of smoking)         | E-cigarettes and other NCPs   | General consumer protection   | Corner shops, online outlets, etc.   | Products are currently marketed as harm reduction alternatives to tobacco. One possibility is to ban the e-cigarette until there is sufficient scientific evidence about potential health effects. Possible mitigation strategies to the current status quo are more controlled industry standards and stricter labelling |
| Consumer good – European product certification | Leisure/ Harm reduction (no claim that product can assist in the cessation of smoking) | E-cigarettes and other NCPs   | Assessment for safety and quality/<br>Voluntary technical standards | Corner shops, online outlets, supermarkets and hypermarkets <sup>218</sup> , etc.  |   |

<sup>216</sup> In the UK all NRTs are available in GSL

<sup>217</sup> In the UK, e-cigarettes are supervised under general product safety legislation and the Chemicals (Hazard Information & Packaging for Supply) Regulations 2002 (CHIP) & LACORS (the Local Authorities Coordinators of Regulatory Services). In the Netherlands, however, there are no such quality and safety checks.

| Regulation | Health claim  | Example                            | Control measures | Product availability      | Considerations in relation with e-cigarettes   |
|------------|---------------|------------------------------------|------------------|---------------------------|--|
|            |               |                                    |                  |                           | and warning requirements.  |
| Tobacco    | Health hazard | Cigarettes<br>Cigars<br>RYO<br>Etc | Same as tobacco  | Same as tobacco           | The risk of treating the e-cigarette as tobacco and applying the same regulations to them is that the evidence base that could emerge from current and future research could suggest they are effective for NRT or harm reduction. |
| Banned     | Health hazard | (Snuff/Snus - except Sweden)       |                  | Unavailable, black market | The risk of banning the e-cigarette is that the evidence base that could emerge from current and future research could suggest they are effective for NRT or harm reduction  |

**Stakeholders consulted for this report tend to agree that more supervision will be beneficial for consumers**, especially regarding the content of nicotine in the e-liquid that is imported from China and the information regarding the content of nicotine (“high”, “medium”, “low”, “zero”) was standardised. For example currently the poisonous level of nicotine for UK standards is 7.5% while in France it is at 2%. Even European distributors of e-cigarettes as well as other stakeholders (e.g. ECITA<sup>219</sup>) related to the e-cigarette industry and consumer associations agree that it would be beneficial to introduce further quality controls of the products available, especially e-liquids.

<sup>218</sup>We are making the assumption that big retailers may be interested in selling e-cigarettes if they perceive that it is safe to sell the product.

<sup>219</sup> ECITA has developed an industry standard of excellence programme, in close collaboration with a number of UK Government Departments including the National Measurement Office (NMO). The programme is rather comprehensive and covers:

- Packaging standards.
- Nicotine standards; testing that nicotine is not contaminated and that the right level is used.

The table below maps health and economic considerations to the different options that the Commission is currently considering in relation to nicotine products (and specifically e-cigarettes).

**Table 14: Health and market considerations under different regulatory options**

|                    | E-cigarettes subject to general consumer and safety regulations   | E-cigarettes regulated as tobacco products   | E-cigarettes regulated as pharmaceuticals  |
|--------------------|---|--|--|
| Health perspective | <ul style="list-style-type: none"> <li>• Loose safety assessment and</li> <li>• Potentially large uptake of e-cigarettes as an alternative to smoking</li> <li>• Product innovation will expand risks of “initiation”</li> </ul>      | <ul style="list-style-type: none"> <li>• No recognition of potential for harm reduction</li> </ul>   | <ul style="list-style-type: none"> <li>• Stringent safety assessment before authorisation</li> <li>• Greater ability for regulator to target marketing of product to current smokers</li> </ul>  |
| Market perspective | <ul style="list-style-type: none"> <li>• Low barriers to entry</li> <li>• High product innovation</li> <li>• Inconsistent national regulatory regimes (as some countries will maintain their bans or specific regulations)</li> </ul> | <ul style="list-style-type: none"> <li>• Taxation and advertisement regulations similar to tobacco would apply to e-cigarettes, thus affecting consumption.</li> <li>• High price could favour black market</li> <li>• Competition with existing tobacco products</li> </ul> | <ul style="list-style-type: none"> <li>• High barriers to entry</li> <li>• Loss of competition with existing big players (tobacco, pharma) driving market entry</li> <li>• Focus R&amp;D on maximising health gains</li> <li>• Maximum harmonisation of national regulatory frameworks across the EU</li> <li>• Competition with NRT products</li> </ul> |

#### 4.4.5 Conclusions

A status quo option looks problematic as it does not address increasing variations across Member States. A ban would have a major impact on a new area where views on the potential harm reduction benefits are under discussion. A requirement to seek authorisation as a medical product would need to account for the challenges outlined in this section.

- 
- Hardware standards and certifications, including batteries, plugs and sockets.
  - Customer service standards.
  - Data protection standards.

ECITA proposes expanding the existing excellence programme and harmonise these standard across Europe and let the e-cigarette industry self-regulate.



## 4.5 Tobacco Vending machines

### 4.5.1 Introduction

Tobacco vending machines (TVM) have been a significant distribution channel for cigarettes in a number of Member States, although in most markets their share is not proportionately large.<sup>220</sup> Vending has also become a target of tobacco control because of its connection with under-age smoking. A number of solutions have been identified to restrict access to minors, including banning vending machines, identity verification systems (through identity card, or credit card), or restricting the location of the vending machine to guarantee supervised access.<sup>221</sup> Stakeholders indicated that vending machines were adaptable, in that existing machines could usually be changed such that age verification mechanisms were implemented.<sup>222</sup>

Vending machines are legal in 13 Member States: Austria,<sup>223</sup> Czech Republic,<sup>224</sup> Denmark,<sup>225</sup> Finland,<sup>226</sup> Germany,<sup>227</sup> Ireland,<sup>228</sup> Italy,<sup>229</sup> Luxembourg,<sup>230</sup> Malta, Netherlands,<sup>231</sup> Portugal,<sup>232</sup> Spain,<sup>233</sup> and Sweden<sup>234</sup>. Data for for these countries<sup>235</sup> show that between 2000 and 2010, a total of 816.8 billion sticks of cigarettes were sold through vending machines.<sup>236</sup> The overall volume of cigarettes purchased through vending machines as a share of total cigarettes sold in these Member

---

<sup>220</sup> Euromonitor. Distribution Watch – Cigarette vending under scrutiny. 5 June 2008.

<sup>221</sup> Removing vending machines from the streets, like in Germany, is an example of restricting the location of these selling devices. Euromonitor. Distribution Watch – Cigarette vending under scrutiny. 5 June 2008.

<sup>222</sup> This was, for example, confirmed by Carsten Zenner, the head of the German BDTA. The German example of a comprehensive age verification introduction in 2007, without every vending machine having to be replaced, shows that existing machines can often readily be adapted.

<sup>223</sup> Vending machines must have an electronic age control by bank card or mobile phone.

<sup>224</sup> The sale of tobacco products, tobacco accessories and electronic cigarettes in vending machines, where the sale to persons less than 18 years of age cannot be precluded, is prohibited.

<sup>225</sup> Electronic vending machines must be placed under surveillance.

<sup>226</sup> Tobacco products and smoking accessories may be sold from automatic vending machines only where such sales are under supervision. An automatic vending machine shall be placed so that its use can be monitored continuously. A ban will be introduced from 2015

<sup>227</sup> Vending machines must contain an electronic device for controlling the age of the buyers.

<sup>228</sup> Vending machines can only be located in licenced venues.

<sup>229</sup> Vending machines should be equipped with electronic devices to control the age of the purchaser.

<sup>230</sup> Normally, the purchaser has to get a coin from the counter to activate the machine.

<sup>231</sup> Vending machines have to be placed in a spot where personnel of the location where they are situated and can supervise them to make sure age restrictions are respected. Outdoor vending machines are not allowed.

<sup>232</sup> Vending machines should have an electronic system or other system in order to prevent the access of minors (under 18 years old). These machines should be placed inside the establishments, under the visual control of the vendor, and they cannot be placed in corridors, stairs or other spaces out of shops in commercial malls.

<sup>233</sup> Vending machines can only be placed inside stations, bars, restaurants and convenience shops of petrol stations, under the direct surveillance of the owners or their employees and under registration procedure, inspection and control carried out by the *Comisionado para el Mercado de Tabacos*. The machines must include a technical device to block the access to minors.

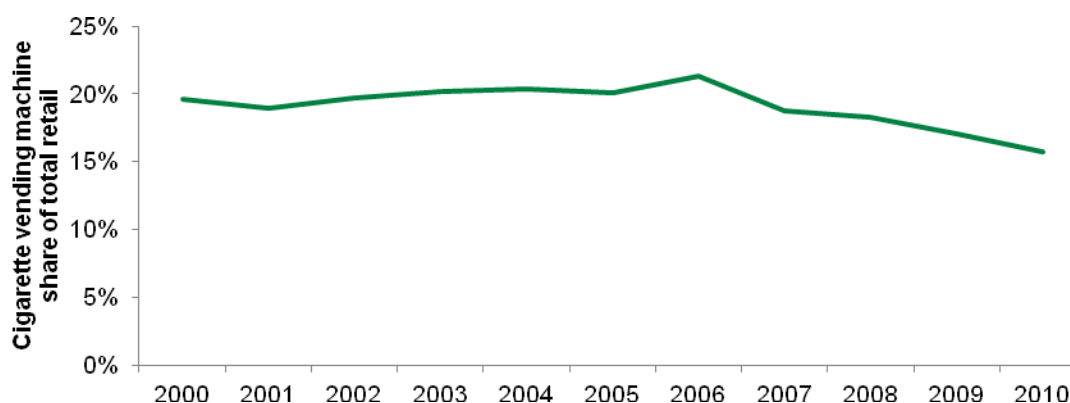
<sup>234</sup> The sale of tobacco products has to be made in such a way that makes it possible to control the recipients age.

<sup>235</sup> Data are not available for Luxembourg and Malta.

<sup>236</sup> Note that minimal sales (accounting for between 1% and 3% of overall sales) were recorded from TVM in Belgium and the UK over the 2000-2010 period, too, whilst TVM were still permitted in these countries. However, as the focus here is on sales in countries where TVM are not currently banned, these are not included in the 'studied countries'.

States was 19% over the entire period (corresponding to 10% of total EU sales over the entire period). Sales through vending machines constitute a moderate share of overall sales and they have dropped from 19.64% of overall sales in the studied countries in 2000 to 15.76% in 2010, after reaching a peak in 2006 (10.46% of total EU sales in 2000, 8.46% of total EU sales in 2010). Spain is the country with the highest absolute volume of cigarettes purchased through vending machines between 2000 and 2010 (514.563 billion sticks), while Denmark is the country with the smallest absolute volume of cigarettes purchased through vending machines over the same period, within those countries which do not have a ban in place (1.12 billion sticks).

**Figure 61: Vending machines sales as percentage of sales through all retail outlets in selected Member States (2000-2010)**



Source: Euromonitor

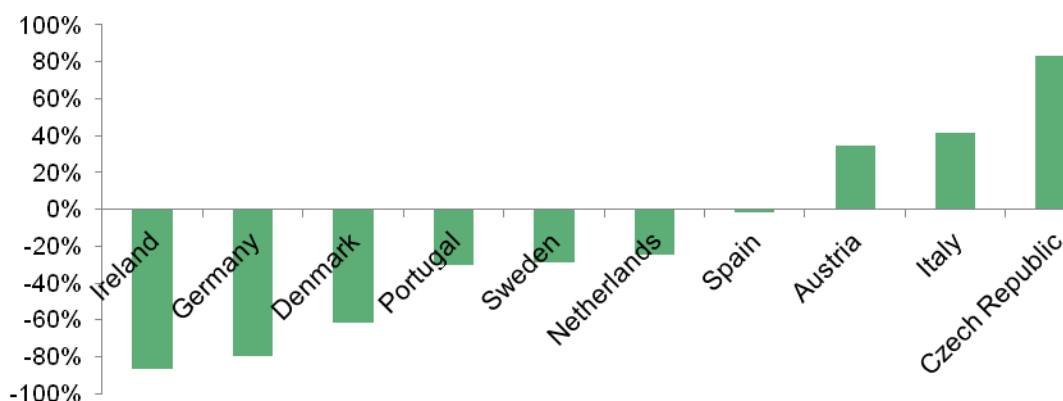
This reduction is likely to have been caused by the restrictions on vending machines introduced in most of these countries. This could also have been affected by other smoking control measures such as smoking bans in bars and clubs, the traditional location for tobacco vending machines<sup>237</sup> the assumption being that customers are less likely to buy cigarettes from vending machines located in bars if they cannot smoke them in these premises. As Figure 65 demonstrates, sales through vending machines declined by 38% across the 10 Member States between 2000 and 2010. The sharpest decline (-86.36%) was visible in Ireland, while an equally significant increase (83.29%) was visible in the Czech Republic. In absolute terms, the largest fall in volume sales was in Germany, which saw a reduction in sales of 31 billion sticks between 2000 and 2010. Whilst sales had been falling steadily from 2000 to 2006, the introduction of age verification systems to all tobacco vending machines in 2007 caused, in one German tobacco vending machine manufacturer’s words<sup>238</sup>, the market to “collapse”. Sales in Germany nearly halved from 2006 to 2007 which industry stakeholders believed to have been a result of the legislation.<sup>239</sup>

<sup>237</sup> Euromonitor. Distribution Watch – Cigarette vending under scrutiny. 5 June 2008.

<sup>238</sup> Interview with HARTING SYSTEMS, 24 October 2011

<sup>239</sup> Interviews with manufacturers indicate that while it is usually possible (depending on the machine) to adapt old units to new specifications, the markets for other products is saturated and therefore it is not always economically-wise to do the adaptations.

Figure 62: Percentage change in vending sales, selected Member States (2000-2010)



Source: Euromonitor

### Industry Profile

Currently the main tobacco vending machine manufacturers are based in Spain (Azkoyen, Jofemar<sup>240</sup> and G.M. Vending<sup>241</sup>) and in Germany (SIELAFF GmbH & Co.KG,<sup>242</sup> HARTING Systems GmbH & Co.KG<sup>243</sup>).<sup>244</sup> To gauge a more extensive overview of tobacco vending machine operators, Lekkerland AG & Co. KG, a German wholesaler with a vending-machine-operating (*Automatenaufsteller*) company subsidiary (Tobaccoland)<sup>245</sup>, and the Association of German Tobacco Wholesalers and Vending Machine Operators (Bundesverband Tabakwaren-Großhändler und Automatenaufsteller e.V. (BDTA)) were additionally approached as part of the study.<sup>246</sup>

### Trade (intra EU trade and trade with third countries)

Data on intra-EU trade of tobacco vending machines (TVM) are not readily available. To gauge the existence of such trade we have used data provided by the main manufacturers of TVM in Europe through a number of telephone interviews. We have approached four of companies mentioned above (Jofemar, G.M. Vending, SIELAFF GmbH & Co.KG, and HARTING Systems GmbH & Co.KG) in addition to CLEMTHEK UK Ltd,<sup>247</sup> the lead producer of vending machines in the UK.<sup>248</sup> Interviews

<sup>240</sup> **Jofemar** it is a medium size company, which opened around 40 years ago. It is the second largest manufacturer of tobacco vending machines in Spain and is considered among the top 3 at the European level in terms of sales.

<sup>241</sup> **G.M. Vending** is a 16 year old company, with approximately 55 employees in Spain, and is considered the third largest Spanish manufacturer, with 25-30%. Interview with G.M. Vending on 20 October 2011

<sup>242</sup> SIELAFF refused to provide any information related to tobacco vending machines.

<sup>243</sup> **HARTING Systems GmbH & Co. KG** was founded in 1945 and remains family-run. It employs 3,174 people and had a total revenue of €413 million in 2010, of which over a third came from sales to Europe (excluding Germany), over a third to Germany, and the remaining part from the Americas and Asia. (Tobacco) vending machines only form a part of this company. Interview with HARTING on 24 October 2011 and additional data and position paper provided subsequently.

<sup>244</sup> This was confirmed through the European Vending Association (EVA), communication between Matrix and the Commission, as well as from interviews with another Spanish manufacturers, which however requested to remain anonymous.

<sup>245</sup> Lekkerland were not able to provide data by the time this study was completed.

<sup>246</sup> The director of the BDTA, in an interview on 21 October 2011, questioned the single market legitimacy of further EU directives concerning tobacco vending machines, and did not think that TVM producers had any desire for harmonisation of market conditions, because it was not difficult for them to customise their vending machines according to the countries they were selling to.

<sup>247</sup> **CLEMTHEK UK Ltd.** is a small medium sized enterprise, leader in the TVM sector in the UK producing highly innovative Retail Solutions. The company exports to Europe but its volume sales with other EU countries are not very large.

reveal that these companies engage in considerable intra-EU trade. While no data were provided on the volume of sales, there is an indication that together these companies represent more than 50% of the European market of TVM. For example G.M.Vending indicates that of the market and is among the top five companies in Europe with around 20% of the EU market. It operates in Ireland, Germany, Italy, the Czech Republic, Greece, Hungary and the United Kingdom..

#### 4.5.2 Baseline Regulatory Position

A number of Member States have introduced a ban on tobacco vending, while others have put in place policies to restrict access. The most recent country introducing a ban is in England<sup>249</sup>, where the new rule entered into force in October 2011.

#### 4.5.3 Single Market Considerations

Different regulatory regimes exist for vending machines across Member States. In those countries where no bans are in place, different restrictions to prohibit under age access are in place. However, lack of harmonisation between Member States in the nature of the restriction applied could hinder trade in vending machines between Member States.

#### 4.5.4 Industry Response

The stricter national regulations on tobacco vending have affected different companies in different ways. Companies such as Jofemar and G.M.Vending were hit by the bans and their sales (both national and European) dropped, while others (namely CLEMTHEK UK Ltd.) benefited from the ban.<sup>250</sup> The interview with this UK based company suggests that research and development (R&D) and investments in new technologies can protect companies from the potential negative effects on sales from introducing specific restrictions. The company reports that in light of the increasing introduction of bans across Europe they have been investing in research and development and have created units specifically suited for the ban. These units are 'ban compliant' because they are electronic machines solely operated by personnel where the machines are located. The company has recently sold 3,000 units in the UK, which introduced the ban only this October. In order to produce these new products and cope with the increasing demands the company has doubled the number of employees. Similar evidence also comes from sales to the Netherlands, which increased after restrictions were introduced last year. The company is moving towards the production of the new units and away from traditional machines.

HARTING also reported restructuring towards producing more 'ban compliant' machines. Because of recent stricter German legislation on tobacco vending machines and on indoor smoking, they estimated that the number of tobacco vending machines in operation in Germany has been reduced by around 65%, to 250,000 machines.<sup>251</sup> Because of this, there is currently little necessity for further investment in traditional 'outdoors' tobacco vending machines in Germany, and HARTING estimate that their current annual revenue from traditional tobacco vending machine sales is around 15% of monthly revenue from these before 2006. Instead, HARTING have invested in storage and 'controlled

---

<sup>248</sup> Interview with CLEMTHEK UK Ltd, United Kingdom, 21 October 2011.

<sup>249</sup> The ban only applies to England. The other parts of the United Kingdom (Scotland, Wales and Northern Ireland) have also committed to banning tobacco sales via vending machines imminently. <http://www.guardian.co.uk/society/2011/oct/01/vending-machine-tobacco-ban-begins>

<sup>250</sup> G.M. Vending total sales dropped by 50% over the past 5 years.

<sup>251</sup> The Director of the BDTA, Carsten Zenner, confirmed in a telephone interview (21 October 2011) that sales from tobacco vending machines had decreased dramatically since 2007, and subsequently provided us with official BDTA data estimating that the number of tobacco vending machines in Germany was 380,000, which is nearly double the HARTING estimate. The origin of the discrepancy in estimates is not clear.



sales' machines, and these have also been sold successfully in other EU countries with stricter regulations even than Germany. They state that they are the market leaders in Finland, and make significant sales in England and Ireland. Therefore, whilst HARTING did experience revenue losses due to stricter legislation in Germany and other EU countries, the necessary restructuring has caused the company to refocus on other areas in which they are now enjoying successes.

Industry representatives believe that a number of issues need to be taken into consideration when assessing the impacts of the proposed policy option related to vending, namely banning vending machines:

- **Link between the option and illicit trade:** in some Member States vending machines have a wide geographical coverage and have been extensively used as distribution outlets, especially at night in countries such as Italy and Spain. Industry claims that if they were to be banned, consumers might turn to illicit suppliers especially given the lack of alternative outlets during night hours.<sup>252</sup> However, no data in support of this claim was provided or found.
- **Economic impacts on small and medium vending machines manufacturers:** the tobacco industry considers that a full ban on vending machines would limit the access for legally sold products. The regulation on vending would impact directly on vending companies and then on the outlets which use vending machines, but the industry suggests it would not impact on their overall sales even if some companies operate their own vending machines (e.g. Japan Tobacco International owns some vending units in Germany and in Austria which operate own vending machines and Imperial Tobacco owns Sinclair Collins, tobacco vending machine company with 550 employees in the UK). In the UK the impact of the vending ban has been limited as vending machine sales account for less than 1% of overall sales. This is also the case because vending has been the most expensive channel to purchase products in the UK<sup>253</sup>.
- High end producers who have made significant investment in age verification technology on the basis that this reflected a fundamental long terms change in approach by national regulators, would be particularly impacted were there a move in regulation from restriction to ban.

#### 4.5.5 Conclusions

To date bans on TVMs have largely been introduced in Member States with relatively small TVM markets. The consequences of banning vending machines in those countries where TVMs are more widespread, would need to take into account the effects such ban could have across the value chain and with respect to illicit trade. It also needs to be explored whether harmonisation across the EU could lead to cost savings.

## 4.6 On-line sales.

### 4.6.1 Introduction

Cross-border online transactions for tobacco products can be motivated by several factors, such as lower prices for illicit/counterfeited products or the illegal exploitation of differences in national tax regimes. Not only do many sites provide discounted prices, but many also dispatch cigarettes in smaller packages in order to stay below national customs limits for extra-EU purchases, thus avoiding

---

<sup>252</sup> Matrix interviews with the tobacco industry, December 2012.

<sup>253</sup> Matrix interviews with the tobacco industry, December 2012.

national duties on tobacco products.<sup>254</sup> Some sellers also offer to fully reimburse the customer should they be charged customs duties and decide to reject the package. Finally, several companies also guarantee discretion over transactions and do not report any information to the relevant authorities.<sup>255</sup> Consequently, unless consumers seek a product not available in their local market, the convenience of purchasing cigarettes online mostly probably stems from a) access to cheap and thus counterfeited products b) the possibility to pay less by evading taxes. In fact products, in principle, cigarettes purchased online need to be taxed according to the regime of the purchaser's MS and thus cost the same as when bought from local retailers.

While cross-border internet sales of cigarettes and illicit trade seem to be closely related, the internet is increasingly also used as a channel for purchasing regular cigarettes from domestic sources (e.g. deliveries from local retailers). In these cases, the size of the online cigarette market is related to broader spread of e-commerce and internet shopping.

### Market size in volume and value

Euromonitor reports that in 2010, a total of 751 million sticks of cigarettes were sold online in 12 Member States.<sup>256</sup> The figure below provides an overview of the share of online retail compared with aggregated total cigarette sales in 2010 the 12 Member States for which data are available.<sup>257</sup>

**Figure 63: % Online cigarette sales (in million sticks) as a share of cigarettes sold in 2010**

Source: Euromonitor

The data show that in 2010, the highest volume of cigarettes purchased online as a share of total cigarettes sold was recorded in the Netherlands (with 1.4%), and the lowest (of those countries with available data and non-negligible market sizes) in Portugal. The Netherlands is also the country with highest absolute volume of cigarettes purchased online in 2010, (185 million cigarettes) while Portugal the country with the smallest absolute volume of cigarettes purchased online over the same period (2.3 million cigarettes).

### Trade (intra EU trade and trade with third countries)

**Online sales data for this analysis are attributed to the country where the consumer is based, rather than where the retailer is based.**<sup>258</sup> The data include purchases by customers in the 10

---

<sup>254</sup> Some examples can be found in these sites: <http://buy.cigs-sale.com/?lang=en&loc=fag>, <http://europe.smokecafe.com/info>.

The latter for example indicates on its home page that: "The cigarettes are sent to Europe by divided cartons, i.e. 2 or 5 packs into each package. Of course this is a more expensive way of shipping because it requires more packing work including wrapping expenses that affect the cost of cigarettes as our company pays for each shipped parcel and not carton."

<sup>255</sup> The home page of <http://euro.cigoutlet.net/> reads: "We don't report tax or customer information to any government agency or other entity".

<sup>256</sup> As data are only available for 12 out of 27 Member States, the figure is only a partial picture of the European internet market for cigarettes. In some countries, the online share of the market is very small and unlikely to reach the threshold of 1% of total sales below which Euromonitor does not report the data.

<sup>257</sup> It should be noted that limited data are available on online sales of cigarettes or tobacco products. Euromonitor does not cover all Member States nor do they pick up shares considered negligible.

<sup>258</sup> Definition of this variable: Legal sales of consumer goods to the general public via the Internet. Consumers purchase goods advertised or promoted through a web-medium whereby the payment is made online through the web platform. Sales data is

Member States above from domestic or international website, located within or outside the EU. In the absence of more detailed data, it is not possible to separate out the domestic and cross-border markets for online cigarettes.<sup>259</sup>

**However, there is evidence of cross-border sales in at least some Member States.** In a number of countries where online sales are banned (see below) Euromonitor still reports online cigarettes purchases. Given the domestic sales ban, we can infer that consumers in these countries must be buying their online cigarettes from websites based in another country.

In addition, there are a number of indications that at least some of this cross-border trade takes place between Member States (as opposed to extra-EU trade). The table in Appendix 12 has a number of examples of online retailers of cigarettes whose websites seem to target EU-customers in different Member States:

#### 4.6.2 Baseline Regulatory Position

There is evidence of cross-border sales in at least some Member States. As the table below shows, half of the Member States do not allow online sales of tobacco products.

**Table 15: Overview of online sales regulation for tobacco products (EU 27)**

| Regulation* | Member States                                   |
|-------------|---|
| Ban         | <b>No sales recorded</b> in eight Member States |
|             | <b>Sales recorded</b> in seven Member States    |
| Restriction | In three Member States                          |
| None        | In nine Member States                           |

Source: Euromonitor. \*Material sent by DG SANCO to Matrix on access to tobacco (13/10/2011).

#### 4.6.3 Impact Domains

Regulation or ban of intra EU on-line sales would principally impact on wholesalers. This is mainly because manufacturers do not sell to the public directly, not online nor through other channels.<sup>260</sup>

#### 4.6.4 Single Market Perspective

Cross-border online transactions can be motivated by several factors, such as lower prices or illegally exploiting differences in national tax regimes for tobacco products. In the EU, tax legislation on tobacco products stipulates that tax should be paid in the country of the purchaser. Therefore, consumers have no strong incentives to purchase (legal cigarettes) online.

---

attributed to the country where the consumer is based, rather than where the retailer is based. The data also includes orders placed through the web for which payment is then made through a store card or an online credit account subsequent to delivery (Euromonitor).

<sup>259</sup> Rand (2010) could not produce any useful data on cross-border purchases.

<sup>260</sup> Some exceptions of direct sale apply, as a limited number of manufacturers own tobacco vending machines in some markets.

#### 4.6.5 Conclusions

Intra EU on-line sales are driven almost exclusively by tax and duty differentials, which whilst being undesirable is not within the remit of the TPD. Member State on-line sales raise similar issues of age verification to the vending market and options to regulate or ban should at least in part be considered on this basis.

## 5.0 Economic Analysis of Impact on Reduction in Tobacco Consumption on Employment

### 5.1 Overview

As touched upon in this study, a decrease in legal tobacco consumptions could reflect a number of things:

- decrease in smoking prevalence;
- switching to NRTs or smokeless products; and
- switching to the illegal market.

The revision of the TPD can thus have a number of desired and undesired consequences in both the domain of consumption and illegal trade. How such revision will affect the above three dimensions is still unknown. Consequently, the section below tackles a straight-forward question:

**“What is the economic impact of a reduction in tobacco consumption across the EU-27?”**

It is important to stress that this model does not link the revision of the TPD to changes in consumptions. In other words, it does not answer the question of how tobacco consumption (NRTs, and the size of the illegal market of tobacco) will change by introducing a set of policy options. **The model, thus estimates the economic impact of the reduction in consumption irrespective of its causes.**

**What is the economic impact of a reduction in tobacco consumption across the EU-27?** This section estimates the economic impact of reducing tobacco consumption by between 0.5% and 2% across the EU-27. Table 16 summarises the results of the economic analysis designed to answer this question. It demonstrates the following impacts of a reduction in tobacco consumption between 0.5% and 2%:

- any reduction in employment will probably be offset by an increase in employment in non-tobacco sectors;
- an estimated €59 to €63 health cost savings per quitter per year which is equivalent to an estimated €2,947 to €3,170 health cost savings over a lifetime per quitter; and
- an estimated €99 in productivity gains per quitter per year which is equivalent to an estimated €4,928 in productivity gains over a lifetime per quitter.

**Table 16: Economic impact of 0.5% to 2% reduction in tobacco consumption (€m, 2010 prices)**

| Impact on employment                                    | Employment impact for different percentage reductions in tobacco consumption |        |          |        |
|---|--|--------|----------|--------|
|   | 0.5%   | 1.0%   | 1.5%     | 2.0%   |
| Net output (€bn)  | €29.7  | €59.4  | €89.1    | €118.8 |
| Net employment (number of jobs)                         | 558  | 1,117  | 1,675    | 2,234  |
| Impact on health and productivity per smoker who quits: | Per year   |        | Lifetime |        |
|   | Male   | Female | Male     | Female |
| Health (QALYs)  | 0.01   | 0.02   | 0.54     | 0.92   |
| Health care cost savings                                | €63  | €59    | €3,170   | €2,947 |
| Productivity  | €99  | €99    | €4,928   | €4,928 |

## 5.2 Change in consumption and taxation

The EU-27 cigarette and RYO market is worth €130.6bn<sup>261</sup>. Of the €130.6bn market value it is estimated that about 76 per cent is driven by taxes on tobacco products. In addition, another approximately 40 per cent of the remaining value is driven by retail and wholesale margins. Therefore, the tobacco industry experiences revenue of about €18.8bn. Thus, a 0.5% to 2% reduction in tobacco consumption would mean between €94m and €377m less revenue for the tobacco industry. Additional detail on how the decrease in consumption on tobacco impacts the revenue of the tobacco industry can be found in Appendix 6. Table 17 summaries the revenue loss that tobacco companies face when consumers decrease their tobacco consumption.

**Table 17: Company revenue losses associated with a reduction in tobacco consumption (€m, 2010 prices)**

|                                   | Company and tax revenue losses with different percentage reduction in tobacco consumption |           |           |           |
|-----------------------------------|---|-----------|-----------|-----------|
|                                   | 0.5%  | 1.0%      | 1.5%      | 2.0%      |
| Reduced spending on tobacco       | € 652.8   | € 1,305.5 | € 1,958.3 | € 2,611.0 |
| Tax revenue lost                  | € 495.8   | € 991.6   | € 1,487.4 | € 1,983.2 |
| Retail and wholesale margins lost | € 62.8  | € 125.6   | € 188.3   | € 251.1   |
| Company revenue lost              | € 94.2  | € 188.3   | € 282.5   | € 376.7   |

## 5.3 Employment

How does the change in consumption reported in Table 17 impact on employment levels? In order to answer this question it is necessary to consider how Member State governments would respond to the loss of tax revenue. For the purposes of the analysis it is assumed that they will recover the lost revenues by increasing taxes elsewhere in the economy<sup>262</sup>. This assumption is based on the concept that governments are not likely to absorb a loss in tax revenue. Therefore, in order to recover lost tax revenue an increase on taxes via other means would be implemented – e.g. income tax, purchase tax, etc. Additionally, lost tax revenue could be recovered by further increasing taxes on tobacco products for individuals who continue to consume tobacco. However, the model does not consider the subsequent changes in tax structure due to a decrease in consumption in terms of consumer and public spending. Thus, this section considers the employment impact of the tobacco industry facing a revenue loss of between €94m and €377m.

### 5.3.1 Change in consumption patterns

A reduced demand for tobacco represents only one half of the picture. **If consumers forgo tobacco products they will spend the money they would have spent on tobacco products elsewhere.** For example they may choose to spend more on food and beverages or clothing. These industries will therefore see an increase in demand for their products and thus increase their expenditure on inputs. This has a knock-on in all associated industries and thus results in an increase in employment. In order to provide a conservative assessment, the economic model does not consider that in reality

<sup>261</sup> The value of the domestic tobacco market is based on the value of cigarettes and roll your own tobacco.

<sup>262</sup> This is based on qualitative data provided by the World Bank literature on input-output modelling (Beyer et al). If the entire value of a reduction in tobacco consumption was used it was bias the results for non-tobacco industries, as these industries will face a larger production increase than the relative decrease in production faced by tobacco. It is assumed that the change in taxes between sectors has no impact on employment.

taxes and margins within the tobacco industry are higher compared to other sectors. That is, a consumer who forgoes tobacco will have the entire price of the product to consume on other goods and considering taxes are lower in other sectors these industries see a larger increase in revenue. **The overall impact on the economy of a reduction in tobacco consumption is therefore the net effect on employment due to both reduced tobacco demand and increased demand for non-tobacco products.**

Consequently, if consumers reduce their spending on tobacco by between €0.09bn to €0.38bn, how will they spend this money?

Table 18 summarises the average expenditure pattern for a person who has recently quit smoking (York, 1995). In addition, it also outlines the corresponding increase in expenditure by sector due to a reduction in tobacco consumption.

**Table 18: Increased spending on other products as a result of a reduction in tobacco consumption (€m, 2010)<sup>263</sup>**

| Expenditure categories                               | Spending pattern of a recent ex-smoker | Increase in consumption of non-tobacco products with different reductions in tobacco consumption |        |        |        |
|--|--|--|--------|--------|--------|
|  |  | 0.5%   | 1.0%   | 1.5%   | 2.0%   |
| Food products and beverages                          | 22.90%                                 | €21.6  | €43.1  | €64.7  | €86.3  |
| Wearing apparel; furs                                | 7.80%                                  | €7.3   | €14.7  | €22.0  | €29.4  |
| Housing, electrical energy, gas, steam and hot water | 24.4%                                  | €23.0  | €46.0  | €68.9  | €91.9  |
| Furniture; other manufactured goods n.e.c.           | 6.5%                                   | €6.1   | €12.2  | €18.4  | €24.5  |
| Health and social work services                      | 5.6%                                   | €5.2   | €10.5  | €15.7  | €20.9  |
| Motor vehicles, trailers and semi-trailers           | 6.1%                                   | €5.8   | €11.6  | €17.4  | €23.1  |
| Other transport equipment                            | 6.1%                                   | €5.8   | €11.6  | €17.4  | €23.1  |
| Post and telecommunication services                  | 2.5%                                   | €2.4   | €4.7   | €7.1   | €9.5   |
| Recreational, cultural and sporting services         | 6.1%                                   | €5.7   | €11.5  | €17.2  | €22.9  |
| Education services                                   | 0.7%                                   | €0.7   | €1.4   | €2.1   | €2.8   |
| Hotel and restaurant services                        | 5.7%                                   | €5.4   | €10.7  | €16.1  | €21.4  |
| Other services                                       | 5.6%                                   | €5.2   | €10.5  | €15.7  | €20.9  |
| Total  | 100%                                   | €94.2  | €188.3 | €282.5 | €376.7 |

<sup>263</sup> Numbers were reported in millions and not converted to billions in order to provide a clearer reflection of the distribution in consumption.

### 5.3.2 Change in production patterns

The above change in the pattern of consumption will cause a corresponding change in the pattern of production. In order to estimate this change, **an input-output (I-O) model was used**. I-O analysis is a well-established method for estimating economy-wide effects from a change in demand from one particular industry (Beyer et al, 2000). Conceptually, the I-O model estimates the **direct** and **indirect effects** associated with a change in demand for a particular industry:

- **Direct effects:** a reduction in the consumption of tobacco products leads to a decrease in the demand for inputs that the tobacco industry requires to make those products.
- **Indirect effects:** in turn the industries that are inputs into the tobacco industry reduce their own demand for inputs further affecting the output of other industries and so on.

For example, if the tobacco industry buys inputs from the agriculture industry, a reduction in tobacco consumption would result in a reduction in demand for agriculture (direct effect). In turn, if the agriculture industry buys from the chemical industry to produce agriculture, there will be a knock on reduction in the demand in the chemical industry (indirect effect). Therefore, a reduction in demand for tobacco products not only decreases demand for inputs to the tobacco industry, but all associated industries. The combination of the direct and indirect effect is known as the **I-O multiplier**. The I-O multipliers used in this analysis are derived from the Eurostat input-output matrix (Eurostat, 2007).

Figure 64 outlines the key multipliers within the tobacco industry, a full list of multipliers for the tobacco industry and the sectors associated with increased spending outlined in Table 18 can be found in Appendix 7.

Figure 65 shows the change in production that results from applying the I-O multipliers to the change in consumption patterns summarised in Table 16. It demonstrates that a 2% reduction in tobacco consumption equals €377m revenue loss for the tobacco industry, which in turn results in €1,149m reduction in production. The corresponding increase in the consumption of other goods and services results in a €1,268m increase in production, which equals a net gain of nearly €119m. The impact on production for changes in tobacco consumption from 0.5% to 1.5% can be found in Appendix 10.

The fact that spending on non-tobacco goods and services results in an increase in net production is partially explained by the fact that the tobacco sectors are less input intensive - that is more of production is driven by value added and less from inputs. The value added of an industry refers to things such as fixed capital and operating surplus. It would be expected that industries such as tobacco which are heavily dependent on machinery would invest more in items such as fixed capital. In comparison industries which are less machinery dependent most likely rely more on raw inputs such as agriculture to produce food and beverage products. Within the I-O model industries which are less input intensive result in smaller multipliers. As the non-tobacco sectors are more input intensive than the tobacco industry, spending on these goods results in larger multipliers generating an output gain.



Figure 64: Key input-output multipliers within tobacco industry

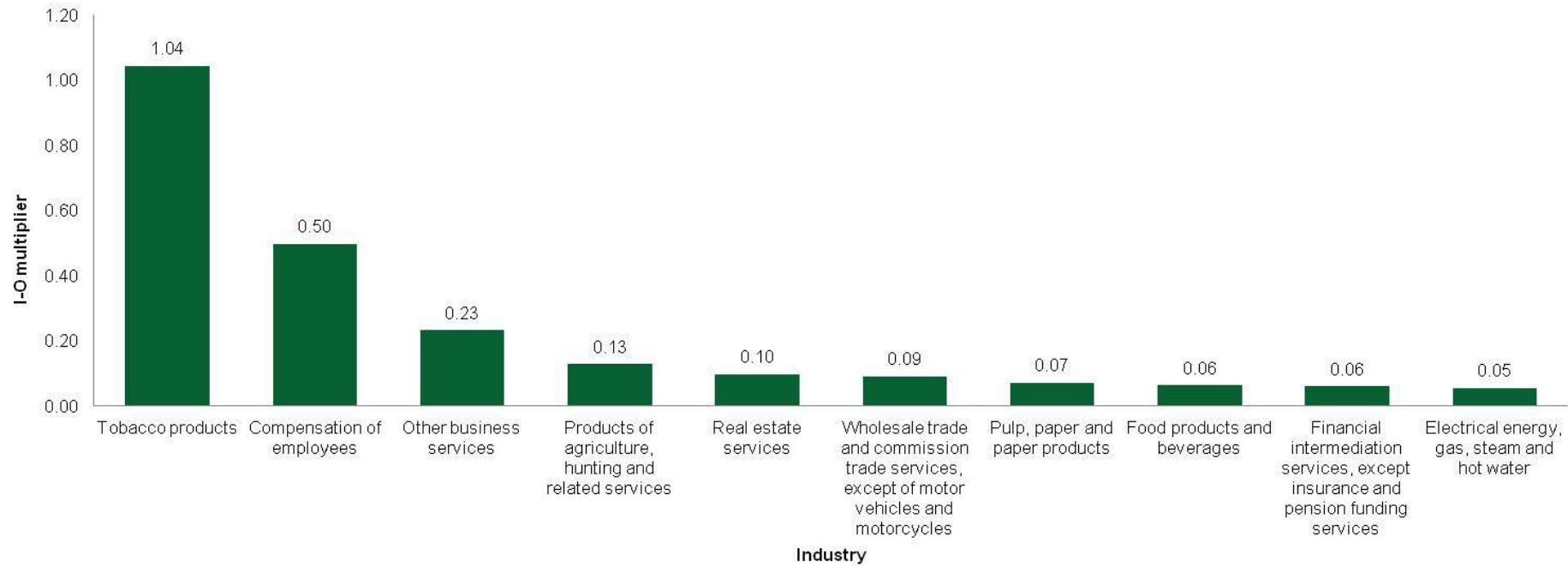
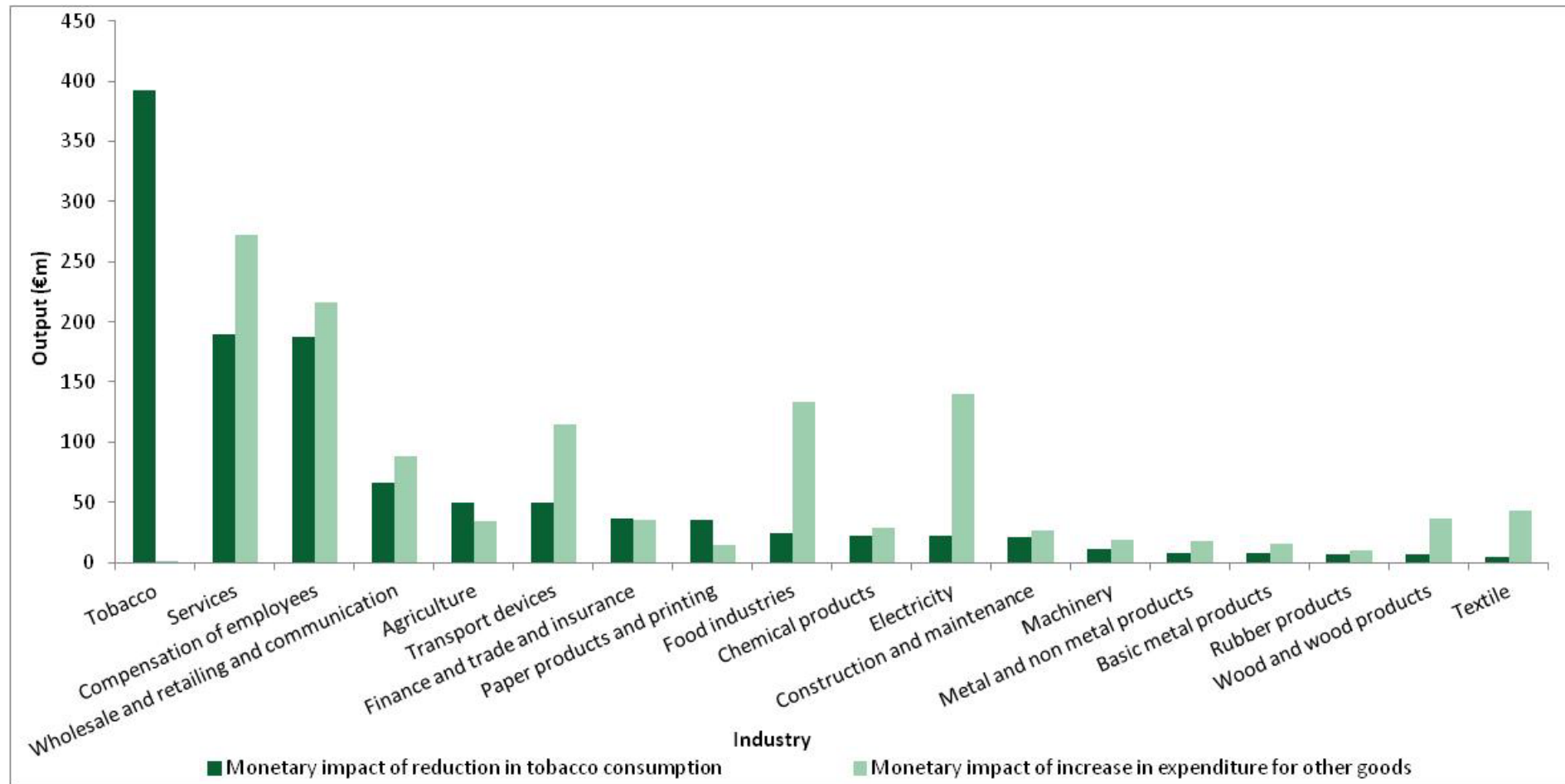


Figure 65: Impact on production associated with a 2% reduction in tobacco consumption



### 5.3.3 Change in employment

How does the change in production reported in Figure 65 impact on employment levels? To answer this question, the employment-output ratios for different industries are applied to the changes in production in each industry as reported in Figure 66.

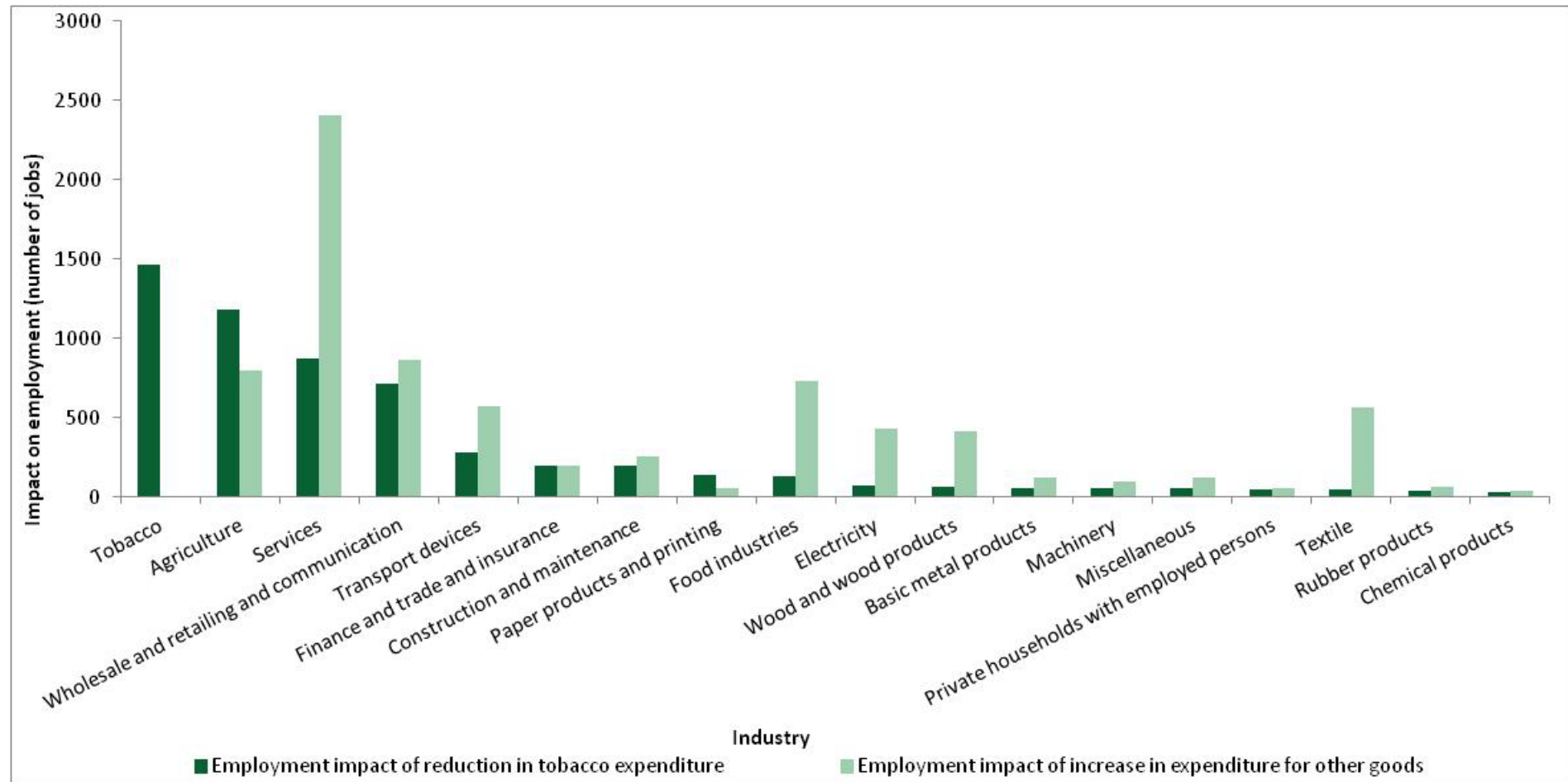
The employment-output ratio provides an estimate of the value of each employee within an industry. It is calculated by taking the total market value for each industry across EU-27 (Eurostat, 2007) and dividing by the total number of employees in that industry across EU-27 (Eurostat, 2009). For example, if the market value of agriculture is €1m and the number of employees in agriculture 100, then the output per employee is €10,000. If the consumption of agriculture products reduces by €200,000, then 20 jobs would be lost (€200,000/€10,000). Table 19 below aggregates some of the key employment-output ratios used in the I-O model, a full list of employment output ratios by industry can be found in Appendix 9.

**Table 19: Summary of industry-level employment-output ratios (€bn, 2010 prices)**

| Industry                                  | Total output value of industry (€bn, 2010 prices) | Total jobs in sector (1,000's) | Output per employee (€) |
|---|---|--------------------------------|-------------------------|
| Agriculture                               | € 406.5   | 9411                           | € 43,190                |
| Mining and petroleum                      | € 151.9   | 689                            | € 220,335               |
| Food industries                           | € 884.3   | 4927                           | € 179,474               |
| Tobacco                                   | € 15.8  | 59                             | € 268,692               |
| Textile                                   | € 198.6   | 2057                           | € 96,582                |
| Leather and leather products              | € 53.2  | 434                            | € 122,367               |
| Wood and wood products                    | € 326.9   | 3431                           | € 95,261                |
| Paper products and printing               | € 417.5   | 1616                           | € 258,392               |
| Chemical products                         | € 1,005.5   | 1602                           | € 627,591               |
| Rubber products                           | € 254.2   | 1579                           | € 161,017               |
| Metal and non metal products              | € 667.4   | 2720                           | € 245,408               |
| Basic metal products                      | € 502.4   | 3737                           | € 134,434               |
| Machinery                                 | € 1,002.5   | 5498                           | € 182,333               |
| Transport devices                         | € 2,188.5   | 11043                          | € 198,183               |
| Miscellaneous                             | € 336.8   | 7148                           | € 47,119                |
| Electricity                               | € 609.0   | 2113                           | € 288,211               |
| Construction and maintenance              | € 2,277.5   | 22296                          | € 102,147               |
| Finance and trade and insurance           | € 1,186.6   | 6487                           | € 182,935               |
| Wholesale and retailing and communication | € 2,420.0   | 27475                          | € 88,080                |
| Services                                  | € 8,508.5   | 78782                          | € 108,001               |

Figure 66 shows the change in employment in each industry associated with a 2% reduction in tobacco consumption. Results for smaller reductions in tobacco consumption can be found in Appendix 10. Figure 66 demonstrates that the reduction in production caused by the fall in tobacco consumption will result in a loss of 5,703 jobs. The corresponding increase in consumption on non-tobacco products results in a gain of 7,936 jobs.

Figure 66: Impact on employment associated with a 2% reduction in tobacco consumption



In other words, although a reduction in tobacco consumption leads to job losses in the tobacco sector, overall this is offset by the gain in employment in the production goods and services purchased by former smokers with the money saved.

As explained above, the net impact on production due to a reduction in consumption was a net gain of nearly €119m (€1,149m loss due to tobacco production, €1,268m gain due to non-tobacco production). The impact on employment is equivalent to nearly 2,234 jobs (5,703 jobs lost, 7,936 jobs gained). When comparing production and employment together it is clear that the relativities between production and employment are not linear. That is a small gain in production within non-tobacco sectors results in a larger gain in employment. The greater impact on employment relative to production is explained by the fact that non-tobacco sectors which have an increase in production are associated with smaller employment output ratios.

As expected, the tobacco, agriculture, and pulp paper products industries are the most negatively affected by a reduction in tobacco. It is estimated that within these industries 1,461, 380, and 75 jobs are lost respectively. However, the loss of jobs in these industries is offset by an increase in employment in a variety of industries such as food products and beverages, wearing apparel and furs, furniture, electrical energy, gas, steam and hot water, health and social work services, hotel and restaurant services and other services. For example, it is estimated the other services, food and beverage, and electrical industries will see an increase in employment of 484, 593, and 351 jobs respectively.

#### 5.3.4 Health and productivity

In order to estimate the impact of a reduction in tobacco consumption on health and productivity, previous models built by Matrix Evidence for the National Institute of Clinical Excellence were adapted (Matrix, 2011)<sup>264</sup>. The models estimate the likely benefits associated with an individual quitting smoking. The benefits are measured in terms of:

- **Quality adjusted life year (QALY) gains:** QALY gains measure the improvement in health related quality of life due to a reduced incidence of five smoking related diseases: lung cancer, stroke, coronary heart diseases (CHD), myocardial infarction (MI) and chronic obstructive pulmonary disease (COPD).
- **Health cost savings:** health cost savings refer to the reduction in treatment costs associated with avoiding the smoking related disease outlined above.
- **Productivity gains:** productivity gains refer to the reduction in smoking related absences in the workplace

Figure 67 illustrates the conceptual model used to estimate the health and productivity savings.

---

<sup>264</sup> The models were adapted to EU-27. Specifically, EU-27 specific treatment costs for lung cancer, stroke, CHD, MI, and COPD were used. In addition, it was assumed the same amount of smoking related absences occurred but the wage rate used to monetarily value absences was updated using an EU-27 average hourly wage rate.

Figure 67: Conceptual model for health and productivity savings associated with reduced tobacco consumption

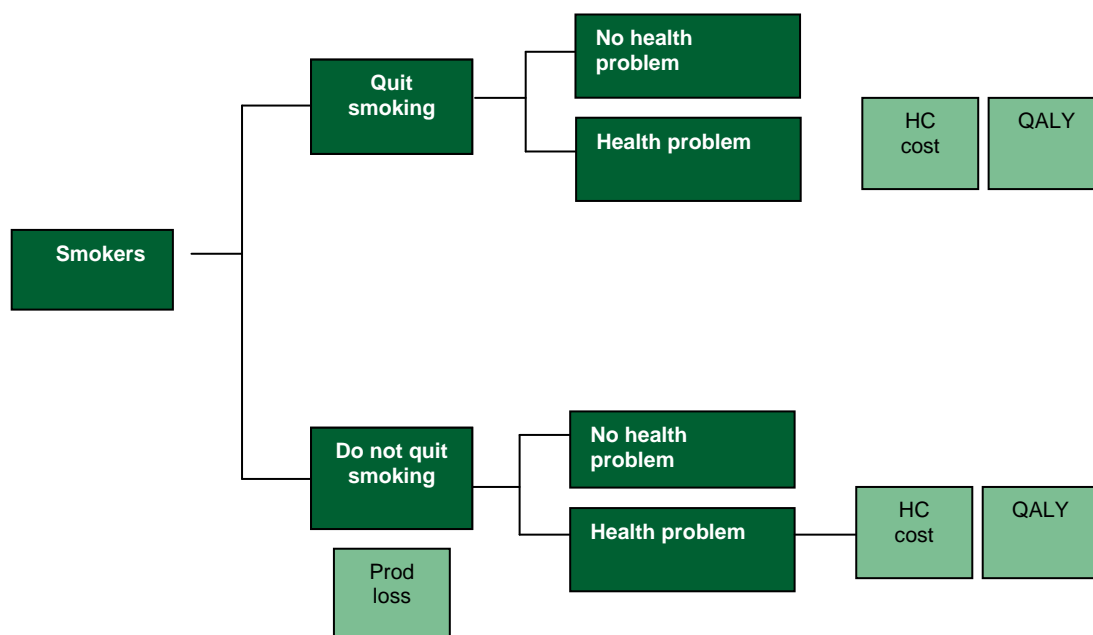


Table 20 summarises the health and productivity benefits associated with one person quitting smoking. It demonstrates that if an individual quits smoking:

- There is a gain in quality of life over the remainder of their lifetime of between 0.53 and 0.92 QALY's depending on gender. That is, a gain of between 0.53 and 0.92 equivalents of a year in full health.
- There is a total health cost savings over the remainder of their life of by between € 2,947 and €3,170 depending on gender.
- There are productivity savings of €4,928 over the remainder of their life.

**Table 20: Lifetime and annual health and productivity benefits associated with one person quitting smoking (€ 2010 prices)**

| Data                               | Per person lifetime |               | Per person per year |              |
|------------------------------------|---------------------|---------------|---------------------|--------------|
|                                    | Male                | Female        | Male                | Female       |
| <b>QALY gain due to:</b>           |                     |               |                     |              |
| Lung cancer                        | 0.07                | 0.09          | 0.001               | 0.002        |
| Stroke                             | 0.06                | 0.08          | 0.001               | 0.002        |
| CHD                                | 0.30                | 0.61          | 0.006               | 0.012        |
| MI                                 | 0.09                | 0.13          | 0.002               | 0.003        |
| COPD                               | 0.01                | 0.01          | 0.000               | 0.000        |
| <b>Total</b>                       | <b>0.54</b>         | <b>0.92</b>   | <b>0.011</b>        | <b>0.018</b> |
| <b>Health cost savings due to:</b> |                     |               |                     |              |
| Lung cancer                        | € 246               | € 246         | € 5                 | € 5          |
| Stroke                             | € 309               | € 284         | € 6                 | € 6          |
| CHD                                | € 1,692             | € 1,502       | € 34                | € 30         |
| MI                                 | € 724               | € 724         | € 14                | € 14         |
| COPD                               | € 200               | € 190         | € 4                 | € 4          |
| <b>Total</b>                       | <b>€3,170</b>       | <b>€2,947</b> | <b>€63</b>          | <b>€59</b>   |
| <b>Productivity gains</b>          | <b>€4,928</b>       |               | <b>€99</b>          |              |

A reduction in consumption does not necessarily imply an individual will quit and thus realise health and productivity benefits summarised in Table 20. In order to estimate the aggregate gains in health and productivity due to reduced tobacco consumption, it is necessary to translate the change in tobacco consumption into an estimate of the number of quitters. Further work is required to determine the relationship between decreased tobacco consumption and estimated number of quitters.

## 5.4 Sensitivity analysis

As with any modelling exercise, the parameters used in the analysis are subject to uncertainty. Within the I-O model there are 3 key drivers of the model:

- Change in production: the input-output matrix
- Change in consumption based on the spending pattern of consumers
- Change in employment: output-to-employee ratios in each industry

As the I-O matrix is required to be a symmetrical matrix where total outputs must be equivalent to total inputs it is not possible to test the sensitivity of the results to the matrix. However, the matrix is reasonably robust being based on data provided by Eurostat.

There is more uncertainty in some of the other key drivers. For example:

- Spending patterns of consumers could be based on those of consumers overall instead of those of ex-smokers.
- Output-employment ratios could be based on a more bottom up approach such as asking individual farmers how many bundles of tobacco they produce a day.

Due to the variety of sources which could be used for these key inputs, it is important to check the sensitivity of the model against changes in these parameters. Therefore, sensitivity analysis was conducted on spending patterns and employment output ratios.

### ***Spending patterns of consumers***

The model uses the spending patterns of someone who has recently quit smoking. In order to test the impact of this pattern on the results of the model, the analysis was rerun using several different scenarios of expenditure patterns which are summarised in Table 21.

**Table 21: Spending patterns of a general consumer vs. ex-smoker**

| Expenditure categories      | General consumer (Eurostat, 2009) | Recent ex-smoker (York, 1995) | Recent ex-smoker (York, 1995 adjusted) <sup>265</sup> | Hypothetical spending pattern <sup>266</sup> |
|-----------------------------|-----------------------------------|-------------------------------|---|--|
| Food products and beverages | 16.5%                             | 22.90%                        | 32.7%   | 20.0%  |

<sup>265</sup> The spending patterns for the York study had a significant percentage allocated to housing, electricity, and healthcare. To test the impact of this distribution, the spending pattern was adjusted to remove these categories.

<sup>266</sup> The hypothetical spending pattern was based on assuming consumers would spend their additional money on day to day products such as food and beverage, clothing, recreational activities, restaurants, and other services.



| Expenditure categories                               | General consumer (Eurostat, 2009) | Recent ex-smoker (York, 1995) | Recent ex-smoker (York, 1995 adjusted) <sup>265</sup> | Hypothetical spending pattern <sup>266</sup> |
|--|-----------------------------------|-------------------------------|---|--|
| Wearing apparel; furs                                | 5.4%                              | 7.80%                         | 11.1%   | 20.0%  |
| Housing, electrical energy, gas, steam and hot water | 22.9%                             | 24.4%                         | 0.0%  | 0.0%   |
| Furniture; other manufactured goods n.e.c.           | 5.9%                              | 6.5%                          | 9.3%  | 0.0%   |
| Health and social work services                      | 3.7%                              | 5.6%                          | 0.0%  | 0.0%   |
| Motor vehicles, trailers and semi-trailers           | 6.6%                              | 6.1%                          | 8.8%  | 0.0%   |
| Other transport equipment                            | 6.6%                              | 6.1%                          | 8.8%  | 0.0%   |
| Post and telecommunication services                  | 2.7%                              | 2.5%                          | 3.6%  | 0.0%   |
| Recreational, cultural and sporting services         | 9.1%                              | 6.1%                          | 8.7%  | 20.0%  |
| Education services                                   | 1.1%                              | 0.7%                          | 1.1%  | 0.0%   |
| Hotel and restaurant services                        | 8.5%                              | 5.7%                          | 8.1%  | 20.0%  |
| Other services                                       | 11.0%                             | 5.6%                          | 7.9%  | 20.0%  |
| Total  | 100%                              | 100%                          | 100%  | 100%   |

Table 22 shows how the net impact on output and employment changes for the different spending scenarios. It is evident from Table 22 that the results of the analysis are not sensitive to the choice of spending patterns.

**Table 22: Economy-wide impact on output and employment using different spending patterns (€bn, 2010 prices)**

| Spending patterns  | Impact on production (reduction in tobacco consumption) | Impact on production (increase in non-tobacco consumption) | Net effect on production | Employment impact (reduction in tobacco production) | Employment impact (increase in non-tobacco production) | Net effect on employment |
|--------------------|---|--|--------------------------|---|--|--------------------------|
| Ex-smoker          | -€1,149.0   | €1,267.7   | €118.8                   | -5,703  | 7,936  | 2,234                    |
| General consumer   | -€1,148.0   | €1,243.9   | €96.0                    | -5,698  | 8,007  | 2,309                    |
| Ex-smoker adjusted | -€1,151.4   | €1,343.1   | €191.7                   | -5,722  | 8,948  | 3,227                    |

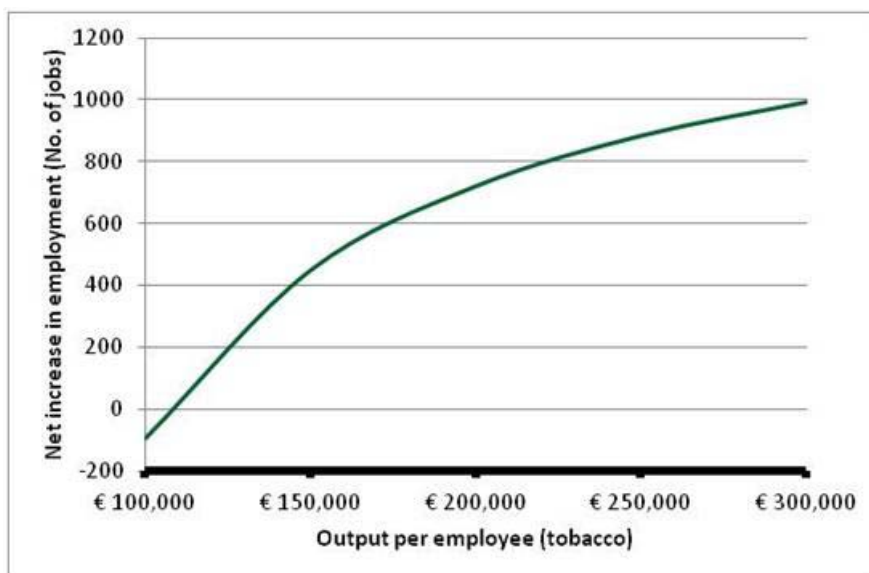
|                       |            |           |        |        |       |       |
|-----------------------|------------|-----------|--------|--------|-------|-------|
| Hypothetical scenario | -€ 1,150.8 | € 1,244.3 | € 93.5 | -5,731 | 9,652 | 3,921 |
|-----------------------|------------|-----------|--------|--------|-------|-------|

### Output-to-employee ratios

The relative output-to-employee ratio in each industry is an important driver in determining the net impact on employment throughout the economy. The tobacco industry and its suppliers have a high output-per-employee rate compared to those industries to which spending is reallocated. Therefore, if a reduction in tobacco consumption leads to a change in net output that favours industries with a low output per employee, then there is likely to be a net gain in jobs.

The output per employee in the tobacco industry is estimated to be around €269,000 (see Table 19). However, this may be regarded as an overestimate considering that the total value of the industry is based on the value of all investments – raw inputs, fixed capital, operating surplus, etc. For example, an alternative way of measuring output per employee could be based on per person sales revenue; assuming an employee within the agriculture industry produced 1000 bundles of tobacco a year and each bundle is sold in the market for €100, this would imply the output per employee is  $(1000 * €100) = €100,000$ . Figure 68 shows how the net impact of a reduction in tobacco consumption on employment if the output per employee in the tobacco industry is reduced. It shows that the output per employee needs to reduce to about €100,000 before the positive net impact on employment is eliminated. That is, **unless the output per employee in tobacco has been overestimated by more than 2.5 times, there will still be a net gain in employment.**

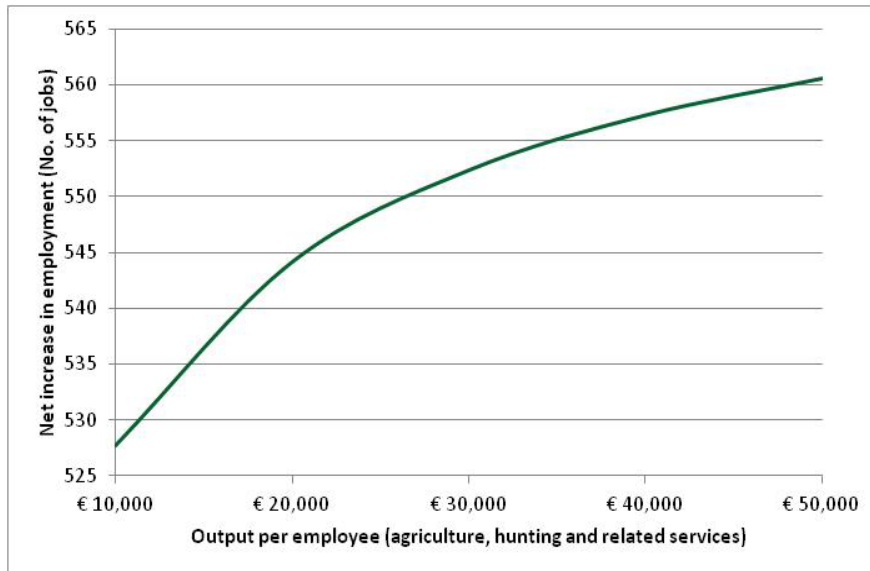
Figure 68: Net impact on employment with changes in the output per employee in tobacco products industry



Moreover, this result holds for other key inputs into tobacco production. For instance, Figure 69 shows the net impact on employment of reductions in tobacco consumption if the output-per-

employee in the agriculture, hunting and related services industries are reduced from the estimate of €41,000 used in the model. Even at an output-per-employee ratio of 4 times less that used in the model, tobacco consumption still has a positive impact on employment.

**Figure 69: Net impact on employment with changes in output per employee in products of agriculture, hunting and related services industry**



## 5.5 Discussion

What is the economic impact of a reduction in consumption of tobacco? The intuitive answer would be that this would reduce production and employment in tobacco and related industries. This section demonstrates that this is the case, but that this is only part of the story. First, the redistribution of spending by ex-smokers causes production and employment in other industries to increase. Furthermore, given that this redistribution of spending is towards industries that are more input- and labour-intensive than tobacco, the increase in production and employment will offset the corresponding reduction in production and employment in the tobacco industry.

Second, the reduction in smoking will improve health, which in turn will result in health cost savings and improvements in productivity.

Overall, the economic gains associated with a reduction in smoking are likely to offset the economic losses. Whilst the I-O models and health economic models used to inform this analysis are best in class, there are, however, a number of limitations with the data and techniques available to estimate such gains and losses, including:

- Time lags in the movement of labour: It is often argued that individuals who lose tobacco-related jobs will not necessarily have the skills to be able to find employment in other sectors. Therefore, it is argued, it is false to assume that if individuals within a particular sector lose their job they will have the skills to find employment in sectors which are hiring. It is, however, not necessary to assume that the new jobs are taken by those losing jobs in, for instance, the tobacco industry. This is especially the case in times of high unemployment.

- Time lags in the movement of production: The model assumes each industry must have “excess capacity” in order to meet the increased demand for its output. That is, there is no time lag and each industry is able to immediately meet the increased demand for its products. In reality however, there may be supply constraints in certain sectors. In such cases the increased demand may be met by imports, or in the event that there is also a delay in the response of importers and increase in prices.
- The model is static, reflecting the economy at a specific point in time: The model assumes a constant level of efficiency within industries – constant returns to scale – and does not predict how industries will react to changes in demand in the long-run. For instance:
  - The model assumes the employment-output ratio will be maintained across different levels of production.
  - The model assumes that the same inputs are used by industries as levels of outputs change.

The assumption of constant returns to scale is, however, made less problematic as small changes in output are modelled (such as small fall in tobacco consumption between 0.5% and 2%).

More broadly, ignoring dynamic efficiency, the model ignores the benefits to society of moving towards industries with high labour productivity and greater value added. The general direction of economic progress is, however, in the opposite direction – generating more value with fewer inputs.

The data available does not allow separate analyses of changes in the consumption of different tobacco products – e.g. cigarettes, roll your own, cigars, etc. The inter-industry transition matrix provided by Eurostat combines all tobacco products into one industry; therefore it is not possible to see how the results of the analysis would vary based on reduction in demand for specific products.

### 5.5.1 What is the impact of the illegal tobacco market?

The analysis summarised above assumes that all the reduction in the consumption of cigarettes is the result of quitting, rather than a substitution of illegally purchased cigarettes for legally purchased cigarettes. What are the implications of this assumption for the results of the analysis? This depends on the proportion of the reduction in consumption that will represent an increase in the consumption of illegal cigarettes.

The Project Star (KMPG, 2010) analysis conducted by KMPG estimates that between 2009 and 2010 the legal market for cigarettes decreased by 39 million cigarettes. However, in the same time period the illegal market for cigarettes increased by only 3 million. It is, thus, perhaps

unlikely that a large proportion of any reduction in the consumption of legal cigarettes will reflect an increase in the consumption of illegally sourced cigarettes.

If, however, the reduction in consumption is overestimated within the analysis, what is the impact of this on our estimates of the economic impact of reductions in tobacco consumption? It is likely that the analysis overestimates the positive impact on health, as the reduction in cigarette consumption will be overestimate. Furthermore, it may be the case that consuming illegal cigarettes is less healthy than consuming legal cigarettes, further eroding the estimates of improved health. However, given Project Star's estimate of the ratio of increases in illegal cigarette consumption to declines in legal cigarette consumption, it is unlikely that illegal cigarettes are unhealthy enough to offset the gains in health.

The impact on employment is, however, ambiguous. Will a reduction in legal cigarette consumption and a corresponding increase in illegal cigarette consumption reduce employment in the EU? This will depend on the distribution of the production of legal and illegal cigarettes and the relative labour intensity of these industries. Again, however, given Project Star's estimate of the ratio of increases in illegal cigarette consumption to declines in legal cigarette consumption, it is unlikely that substituting to illegal cigarette consumption will undermine the conclusion that a reduction in cigarette consumption will have a marginal impact on employment..

#### 5.5.2 Regulation on flavoured cigarettes

The results of the I-O model are based on average parameters for the total domestic tobacco market. Therefore, the model does not estimate the impact on employment due to changes in the consumption of specific types of tobacco products.

It is possible, however, that regulations focus on specific types of tobacco – i.e. flavoured cigarettes. Assuming that a larger proportion of the production of flavoured cigarettes is located in the EU than that for tobacco products on average, what would the implication be for an economic analysis of this sector?

In this instance, for any given reduction in consumption, the job loss in the flavoured cigarette market would be greater than that resulting from the same reduction in consumption in the regular cigarette market. Further work is required to determine whether this might imply a net loss of jobs associated with regulation of this market.

#### 5.5.3 Employment impact on a Member State level

The I-O model adopts an EU-27 perspective, therefore the model does not provide enough detail to determine where exactly jobs are being lost or gained. It can be expected that each Member State will be impacted differently by a reduction in tobacco consumption. For example, the results of the analysis indicate that a reduction in tobacco consumption generates the highest job loss within the tobacco sector. Considering that Italy is a major grower and producer of tobacco it is likely a significant portion of the jobs lost will be realised there (EUROPA, 2010).

In contrast, a reduction in tobacco consumption generates the highest job gain in the food and beverage industry. These jobs will most likely be realised in Germany which has the largest workforce for food and beverage manufacturing across EU-27 (Eurostat, 2011).

Therefore, though the results of the analysis indicate that reduction in tobacco consumption can generate a marginal job gain across EU-27 these benefits will not be distributed evenly across each Member State. Further developments to the I-O model are required to estimate the impact on employment on a Member State level with more accuracy.

## 6.0 Bibliography

1. ASH 2010. Electronic cigarettes. Briefing Paper. Available at: [http://www.ash.org.uk/files/documents/ASH\\_715.pdf](http://www.ash.org.uk/files/documents/ASH_715.pdf)
2. Buck, D., Raw, M., Godfrey, C., Sutton, M. (1995). Tobacco and Jobs - the impact of reducing consumption on employment in the UK. *University of York - Centre for Health Economics*. pp. 1-42.
3. Cabinet Office 2011. Behavioural Insight Team. Annual update 2010–11. Available at: [http://www.cabinetoffice.gov.uk/sites/default/files/resources/Behaviour-Change-Insight-Team-Annual-Update\\_acc.pdf](http://www.cabinetoffice.gov.uk/sites/default/files/resources/Behaviour-Change-Insight-Team-Annual-Update_acc.pdf)
4. Communiqués de press RAPID; “Contraband and counterfeit cigarettes: frequently asked questions.” MEMO/10/448, Brussels, 27 September 2010.
5. Deloitte (2011): “Tobacco Packaging Regulation: An international Assessment of the intended and Unintended Consequences.” A Deloitte Report for British America Tobacco.
6. Directive 2001/37/EC of the European Parliament and of the council of 5 June 2001, on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco products. Official Journal of the European Communities, L 194, 26-34, 2001
7. Euromonitor. Article. French smoking bans hits cigarette sales. 8 January 2009.
8. Euromonitor. Bulgaria Category Briefing. 17 September 2010.
9. Euromonitor. Bulgaria Category Briefing. 17 September 2010.
10. Euromonitor. Cigarettes in Austria. Category Briefing, 9 August 2010
11. Euromonitor. Cigarettes in Belgium. Category Briefing, 9 September 2011
12. Euromonitor. Cigarettes in Bulgaria. Category Briefing, 17 September 2010
13. Euromonitor. Cigarettes in Denmark. Category Briefing, 28 July 2011
14. Euromonitor. Cigarettes in Estonia. Category Briefing, 14 July 2011
15. Euromonitor. Cigarettes in Finland. Category Briefing, 28 July 2011
16. Euromonitor. Cigarettes in France. Category Briefing, 23 August 2010
17. Euromonitor. Cigarettes in Germany. Category Briefing, 5 October 2011
18. Euromonitor. Cigarettes in Greece. Category Briefing, 17 September 2010
19. Euromonitor. Cigarettes in Hungary. Category Briefing, 27 August 2010



20. Euromonitor. Cigarettes in Ireland. Category Briefing, 11 October 2011
21. Euromonitor. Cigarettes in Italy. Category Briefing, 17 August 2011
22. Euromonitor. Cigarettes in Latvia. Category Briefing, 14 July 2011
23. Euromonitor. Cigarettes in Lithuania. Category Briefing, 29 July 2011
24. Euromonitor. Cigarettes in Poland. Category Briefing, 26 August 2010
25. Euromonitor. Cigarettes in Portugal. Category Briefing, 19 August 2010
26. Euromonitor. Cigarettes in Romania. Category Briefing, 14 June 2011
27. Euromonitor. Cigarettes in Slovakia. Category Briefing, 22 September 2010
28. Euromonitor. Cigarettes in Slovenia. Category Briefing, 11 October 2011
29. Euromonitor. Cigarettes in Spain. Category Briefing, 11 October 2011
30. Euromonitor. Cigarettes in Sweden. Category Briefing, 18 August 2011
31. Euromonitor. Cigarettes in the Czech Republic. Category Briefing, 11 October 2011
32. Euromonitor. Cigarettes in the Netherlands. Category Briefing, 6 August 2010
33. Euromonitor. Cigarettes in the United Kingdom. Category Briefing, 15 August 2011
34. Euromonitor. Distribution Watch – Cigarette vending under scrutiny. 5 June 2008.
35. Euromonitor. illicit trade in cigarettes – an introduction. 6 September 2007,
36. Euromonitor. UK roll-up trend. 16 April 2009.
37. Euromonitor. Illicit trade in cigarettes part 3 – regional review Europe
38. Euromonitor. New product developments in tobacco – Euromonitor International review. 30 December 2009.
39. Euromonitor. Smokeless tobacco in Denmark. Category Briefing.28 July 2011.
40. Euromonitor. Smokeless tobacco in Denmark. Category Briefing.28 July 2011.
41. Euromonitor. Smokeless tobacco in Finland. Category Briefing.28 July 2011.
42. Euromonitor. Smokeless Tobacco in Germany. Category Briefing 5 October 2011.
43. Euromonitor. Smokeless tobacco in Romania. Category Briefing. 14 June 2011.
44. Euromonitor. Smokeless tobacco in Slovakia. Category Briefing. 19 October 2011.
45. Euromonitor. Smokeless Tobacco in Sweden. Category Briefing 18 August 2011.

46. Euromonitor. Tobacco Companies Look to Innovation to Boost Sales. 20 June 2011
47. Euromonitor. Trend Watch – Flavoured cigarettes controversy rages on, 23 April 2008
48. Gervais, D. (2010). Analysis of the Compatibility of certain Tobacco Product Packaging Rules with the TRIPS Agreement and the Paris Convention. Report prepared for JTI.
49. Jane Lewis, M. Wackowski, O. (2006): “Dealing with an Innovative Industry: A look at Flavoured Cigarettes Promoted by Mainstream Brand”. American Journal of Public Health, 96 (2): 244-251. Dache, K. (2009): “Pick Your Poison: Responses to the Marketing and Sale of Flavoured Tobacco Products”. Tobacco Control Legal Consortium.
50. Nomisma (2010): “The cultivation of tobacco in the European Union and the impact deriving from the changes in Directive 2001/37/EC. Analyses of socio-economic impact.” Bologna.
51. PMI and Carson Watts Consulting (2011): “Toxicological assessment of cigarettes ingredients”. *Regulatory Toxicology and Pharmacology*. 61: 119-128.
52. Danish Cancer Society, ‘Tobacco Additives – a Study of the Available Literature’, 2008.
53. RAND 2010. Assessing the Impacts of Revising the Tobacco Products Directive.
54. RAND 2011. Availability, accessibility, usage and regulatory environment for novel and emerging tobacco, nicotine or related products.
55. Rodgman, A. (2002b): “Some studies on the effects of additives on cigarette mainstream smoke properties”. II. Casing materials and humectants”. *Beitr. Tabakforsch. Intl.* 20, 279–299.
56. Rodgman, A. (2004): “Some studies on the effects of additives on cigarette mainstream smoke properties. III. Ingredients reportedly used in various commercial cigarette products in the USA and elsewhere”. *Beitr. Tabakforsch. Intl.* 21, 47–104.
57. Rodgman, A.: (2002a): “Some studies on the effects of additives on cigarette mainstream smoke properties”. I. Flavorants. *Beitr. Tabakforsch. Intl.* 20, 83–103.
58. Speech of John Dalli European Commissioner for Health and Consumer Policy, at the Evening Dinner Debate at the European Parliament on 'Quitting: The way forward'. Brussels, 29 November 2010. Available [http://ec.europa.eu/commission\\_2010-2014/dalli/docs/speech\\_quitting\\_smoking\\_en.pdf](http://ec.europa.eu/commission_2010-2014/dalli/docs/speech_quitting_smoking_en.pdf)
59. Swedish Retail Institute (HUI) 2009 “Snus sense? The effect of the export restrictions on the Swedish economy”.
60. Transcrime (2011): “Crime proofing the policy option for the revision of the Tobacco Products Directive. Proofing the policy options under consideration for the revision of EU Directive 2001/37/EC against the risks of unintended criminal opportunities. Milan.

61. World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) and Paris Convention for the Protection of Industrial Property.

## 7.0 Appendices

## 7.1 Appendix 1: Stakeholders Contact List

| Topic                       | Stakeholder Contacted   |
|-----------------------------|---|
| Smokeless Nicotine Products | Mr Romain Fanchon (independent user of e-cigarettes)                          |
| Smokeless Nicotine Products | Stelda (e-cigarettes consumers association in the Netherlands)                |
| Smokeless Nicotine Products | The Electronic Cigarette Consumer Association of the United Kingdom (ECCA UK) |
| Smokeless Nicotine Products | Action on Smoking and Health (ASH UK)   |
| Smokeless Nicotine Products | E-Cigarette Direct and Gower Enterprises (A producer/vendor of e-cigarettes)  |
| Smokeless Nicotine Products | CN Creative Ltd (intellicig) (A producer of e-cigarettes)                     |
| Smokeless Nicotine Products | Electronic Cigarette Industry Trade Association (ECITA, UK)                   |
| Smokeless Nicotine Products | Kind Consumer (developer of smokeless nicotine product)                       |
| Smokeless Nicotine Products | The Consumer Advocates for Smoke-Free Alternatives Association (CASAA, US)    |
| Smokeless Nicotine Products | The Tobacco Vapor Electronic Cigarettes Association (TVECA, US)               |
| Smokeless Nicotine Products | Red Kiwi (E-cigarette vendor)   |
| Online cigarette trade      | Online Tobacco Retailers Association  |
| Online cigarette trade      | Association of Independent tobacco specialists                                |
| Vending                     | Sielaff GmbH & Co. KG Automatenbau  |
| Vending                     | Lekkerland AG & Co. KG  |
| Vending                     | HARTING Systems GmbH & Co. KG   |
| Vending                     | (Bundesverband Tabakwaren-Großhändler und Automatenaufsteller e.V. (BDTA)     |
| Vending                     | Jofemar (vending machines manufacturer)                                       |
| Vending                     | Spanish vending machines manufacturer which requested anonymity               |
| Vending                     | AEROCODIC (vending machines manufacturer)                                     |
| Vending                     | G.M. VENDING (vending machines manufacturer)                                  |
| Vending                     | CLEMTHEK UK Ltd (vending machines manufacturer)                               |
| Tobacco Industry            | British American Tobacco  |
| Tobacco Industry            | Imperial Tobacco  |
| Tobacco Industry            | Japan Tobacco International   |
| Tobacco Industry            | Phillip Morris International  |
| Tobacco Industry            | Small tobacco Manufacturer  |

## 7.2 Appendix 2: Summary of Industry Responses to Questionnaire

### Production/Sales

- 1. What is the average variable cost per package of 20 cigarettes?**
  - One company stated that variable costs of a pack of 20 cigarettes are between €0.12 and €0.18, depending on the brand and on other factors (such as economies of scale).
  - The other three companies did not answer this question.
  
- 2. What is the total variable cost of overall production destined for sale in EU?**
  - None of the four companies answered this question.
  - One company estimated that *at an industry level*, total variable cost of overall production destined for the EU may be estimated at around €5 billion.
  
- 3. What is the average sales price per package of 20 cigarettes (excluding taxes)?**
  - None of the four companies answered this question.
  - One company estimated that the average sales price per package of 20 cigarettes (*including taxes*) is €3.93.
  
- 4. What factors are included in your variable costs?**
  - One company stated that the three categories of their variable costs are (1) leaf tobacco (48% of variable costs), (2) direct materials (including cigarette paper, hinge lids, wrapping material, filters, cartons, inks) (37% of variable costs), and (3) conversion costs (including labour costs and manufacturing overhead costs incurred in converting a material from one form or type into another) (15% of variable costs).
  - Another company split variable costs into (1) wrapping and packaging materials (including cigarette paper and filters), (2) leaf tobacco, (3) manufacturing costs and (4) supply chain costs.
  - The other two companies did not answer this question.
  
- 5. What are the non-manufacturing expenditure (relating to production and sales in EU); total and split into R&D, marketing/promotion, administrative costs (incl. Overheads), distribution costs and other costs?**
  - No company provided broken-down costs.
  - One company stated that its total non-manufacturing expenditure (relating to production and sales in EU) is €1.5 billion per annum.
  - Another company stated a figure of €1.3 billion in 2010.
  - Two companies did not answer this question.

## Packages

- 1. How do you produce/get packages? Is it: own production, partially own production or purchased from suppliers?**
  - All four companies answered that they purchase pre-printed packaging materials from suppliers, which are subsequently assembled within own facilities.
  - One company stated that, if a finished tobacco product is purchased from a supplier, that supplier also produces the finished packaging (i.e. not just the flat-pack).
  
- 2. What is the number of own production facilities for packages destined for the EU and locations of these facilities?**
  - Three companies responded that this question is not applicable as they do not produce their own packaging.
  - One company did not answer this question.
  
- 3. What is the average variable cost of production of a package destined for the EU?**
  - One company noted that package assembly costs must be added to the €0.02 average purchase price of a package [see below], but the company did not specify their size.
  - Three companies did not answer this question.
  
- 4. What are the components of the variable costs for packaging and what is their share in % of total variable costs?**
  - One company specified that the primary production costs associated with a pre-printed flat pack are printing and materials, though provided no percentages.
  - Three companies did not answer this question.
  
- 5. What is the average purchase price of a package destined for EU?**
  - One company stated that pre-printed flat packages were purchased from third party suppliers, generally for prices around €0.02 each (depending on the specifications, economies of scale, etc.).
  - Three companies did not answer this question.
  
- 6. Are there significant cost differences between different types of packages; if yes, what are the reasons?**
  - All four companies stated that there are significant cost differences between different types of packages.
  - Major factors for this (named by three companies) include quality grades, production processes, design features, volumes, pack format, pack content, pack materials, types of machines required, different machine speeds.
  - One company stated that cost variances were primarily driven by having a diversified portfolio of distinctive brands, with another company emphasising that consumer product manufacturers invest heavily into packaging to develop brand equity and differentiate amongst products. Further, one response stated that pictorial health warnings are more expensive than textual warnings.
  - One company did not specify the reasons for the significant cost differences.

**7. Are there significant cost differences of a package between different countries; if yes, what are the reasons?**

- All four companies stated that there are significant cost differences between packages in different countries.
- Three companies named reasons including consumer demand (where economy brands are dominant, premium markets packaging costs will be higher), economies of scale, costs associated with different forms of health warnings and other regulatory costs.
- One company did not provide reasons.

**8. Have the costs of a package significantly differed over time, especially since 2005; if yes, what are the reasons?**

- Three companies replied that flat-pack and printing costs have increased. Reasons provided for this include market dynamics (trend towards tobacco companies' premiumisation of brand portfolio entails higher production costs) and input materials inflation (due to printing industry consolidation, inflation process and key cost components growth).
- One company did not answer this question.

**9. What is the number of suppliers of packages; names and locations of suppliers?**

- Four companies answered this question.
- Three companies named a total of 31 external packaging suppliers, where some suppliers provided packages to more than one company. These 31 companies were located in a total of ten countries: Austria, Czech Republic, Denmark, France, Germany, Netherlands, Poland, Spain, Switzerland and the UK.
- One company stated that it has 9 strategic suppliers but did not specify their names or locations.



## Cigarettes

- 1. How do you produce cigarettes? Own production, partially own production, purchase from suppliers?**
  - Four companies answered this question.
  - All four specified that they produce cigarettes themselves, with three of these specifying that they also purchase cigarettes from suppliers.
  
- 2. What is the number of own production facilities for cigarettes destined for the EU? What are the locations of these facilities, the number of overall employees, the share of employees working for EU markets?**
  - Three companies answered this question, stating that they had a combined 23 cigarette production facilities for cigarettes destined for the EU, one filter production facility and one hand rolling tobacco production facility. These are stationed in twelve EU countries: Czech Republic, France, Germany, Greece, Hungary, Italy, Lithuania, Netherlands, Poland, Portugal, Romania and Spain as well as in Ukraine.
  - Overall, two of these companies directly employ 18,000 full-time employees in the EU.
  - The other one of these three companies stated that it was unable to provide the number of employees working for EU markets.
  - The fourth company stated that it has 24 cigarette factories worldwide, but did not provide EU-specific numbers.
  
- 3. What is the average variable cost of a cigarette destined for the EU?**
  - One company stated that the variable cost of producing a single cigarette is generally less than €0.01.
  - Three companies did not answer this question.
  
- 4. What are the components of total variable costs and their share in % of total variable costs?**
  - One company stated that variable costs **only related to the production of cigarettes** can be broken down into leaf tobacco (68%), direct material (22%) and conversion costs (10%).
  - A further company specified that variable costs consisted to 75% of leaf tobacco and 25% of direct material.
  - Two companies did not answer this question.
  
- 5. Average purchase price of a cigarette**
  - None of the four companies answered this question.
  
- 6. Are there significant cost differences per cigarette between brands; if yes, what are the reasons?**
  - Four companies stated that there are cost differences per cigarette between brands.
  - Two companies provided reasons, including: differences in blends, filters, wrapping materials, batch sizes, raw materials, machines running at different speeds and usage of different non-tobacco materials to reflect consumer preference.

- 7. Are there significant cost differences per cigarette between different countries?**
- All four companies stated that there are cost differences per cigarette between different countries.
  - Reasons given for this (by all four companies) include conversion costs, cigarette format (king size, 100s, slims, etc.), blend and filter costs, differing consumer preferences, raw materials, import duties and labour costs.
- 8. Have the costs of cigarettes significantly differed over time, especially since 2005; if yes, what are the reasons?**
- Three companies stated that current costs were significantly different to 2005.
  - One of these companies reported that manufacturing costs have fallen, because factory footprint rationalisation and efficiency initiatives have offset the increasing leaf and wrapping materials costs.
  - The other two companies did not specify whether costs have risen or fallen, but stated that costs of raw materials, regulatory requirements and labour costs have changed.
  - One company did not answer this question.
- 9. What is the number of suppliers of cigarettes; their names and locations?**
- Two companies specified a total of 12 external cigarette suppliers, of which one supplied both companies. The twelve different companies are stationed in Andorra, Azores, Belgium, Canary Islands, Corsica, Luxembourg, Madeira and the UK.
  - Two companies did not answer this question.

## Change of a packet

- 1. On average, how often do you re-design packages (outside changes required by law)?**
  - All companies answered this question.
  - One stated that global brands and some high volume local brands get refreshed every 2-3 years, whilst other brands (at least 50% of their brands) are likely only to be redesigned due to legislative requirements.
  - Another company stated that the average frequency for changes of the main stock keeping units (SKUs) is every three years.
  - Two companies gave no quantitative estimates, but noted that re-designs occur when business needs emerge.
  
- 2. Average cost per brand for re-design of the package (on your own decision)?**
  - One company stated that a global brand re-design costs around €7m, including development, tooling and write-offs. Re-design costs depend heavily on geographic coverage and the number of brand variants.
  - One company stated that a packaging change costs over €20,000 per SKU, primarily due to printing and embossing cylinders being changed.
  - Another company stated that an average was impossible to estimate, because of the differing nature of different redesigns.
  - One company did not answer this question.
  
- 3. Average total costs (one-off) per brand for re-design of the package due to introduction of mandatory pictorial warnings in Belgium in 2006?**
  - One company stated that the average one-off cost per brand was €41,000, due to design/artwork/cylinders/communications/material write offs, and €14,500 per SKU.
  - Another response reported that the average one-off cost per SKU was over €20,000.
  - A further company stated that it incurred over €5,600 in annual costs per SKU directly related to the annual rotation of pictorial health warnings; as well as an absolute figure of €77,000 cost due to write-offs of non-compliant packaging materials and non-compliant stocks. This company did not, however, provide estimates of the initial one-off costs or the indirect costs of design, production, inventory and stock management.
  - One company did not answer this question.
  
- 4. Were there significant cost differences between brands; if yes, what are the reasons?**
  - Three companies stated that there were significant cost differences between brands. This was because of the machinery involved, material used, printing technology (offset or gravure printing), market share/size of the brand, number of brand variants (with many similar SKUs, cylinders or plates can be shared). One of these companies reported that, in general, premium brand changes may be three to four times more expensive than budget brand changes.
  - The other company stated that there were no significant cost differences between brands, but did not elaborate further.
  
- 5. Was there a difference between one-off costs for a re-design of the package of a brand due to law requirements in Belgium in 2006 and any other country in the EU that subsequently introduced mandatory pictorial warnings; if yes, what were the reasons?**

- All four companies stated that there was a difference, though companies named different reasons for this.
- Two companies mentioned the Belgian legislation requiring 42 rotating pictorial health warnings, rather than the usual 14 in other Member States, as the main cost difference factor. Additional one off costs are associated with the write-offs of non-compliant packaging materials and non-compliant stock.
- Another company stated that the two main cost difference factors are how many SKUs exist in a country and supply side cost increases in different years of pictorial health warning introductions in different countries.
- The other company named the Romanian introduction of pictorial health warnings as being significantly more expensive than the Belgian introduction, because it entailed a simultaneous increase in the size of the health warning *and* the introduction of pictorial health warnings (involving a full redesign of the pack including logos, etc.). This company gave the figures of the average one-off cost in Belgium coming to €14,500 per SKU and in Romania to €50,000 per SKU.

**6. What are the main factors of the one-off costs associated with introduction of mandatory pictorial health warnings in Belgium in 2006 and their share in % as of total costs?**

- One company stated that the main one-off costs were write-offs of non-compliant packaging materials and non-compliant stocks, though did not name their share in % of total costs.
- Another company stated that the main one-off cost factors were changing printing and embossing cylinders (75% of cost) and changing packaging layouts (25%).
- The two remaining companies named a variety of main factors, without providing percentage figures of overall costs. These included: pack format (different formats require different cylinders), print method (whether offset or gravure is used), outer format (cardboard outers or naked wrap), pack source, size of pictorial health warning, rotation of pictorial health warnings, whether old stock is given sufficient time to clear the market, clarity of the official guidance.

## Change of composition and branding of cigarettes

- 1. On average, how often do you change the composition of your cigarettes (outside changes required by law)?**
  - One company stated that these were very rare, and that brand composition usually remains the same over many years.
  - Three companies stated that blends change, but gave different reasons:
    - One company stated that changes are usually driven by natural tobacco crop variations, due to the agricultural variability, necessitating composition changes. More fundamental composition changes are infrequent, and the company stated that 50% of its brands will not undergo composition changes in the foreseeable future.
    - One company stated that blends change continuously, because tobacco is a natural product; and that the composition is changed to maintain product integrity and meet consumers' expectations.
    - One company reported a number of reasons for blend changes, including the necessity to fulfil legislative requirements despite year-on-year crop variations, to manage a supplier change of an ingredient or non-tobacco component, to standardise the brand against a new making machine, or to reduce the overall complexity and diversity of SKUs.
  
- 2. What is the average cost per brand of changing the composition of your cigarettes (on your own decision)?**
  - One company reported that a major product redesign would cost in excess of €1 million per brand, and that a Canadian-style ingredients ban (even with an exception for casings) would require such a major redesign for virtually every brand across most of the EU. Costs included in this figure are development work, specification maintenance, pre-trials, pilot plant trials, analytical work, as well as the cost impact on stock holdings and factory efficiency.
  - Two companies did not answer this question, and a further company stated that it was not possible to provide an average cost.
  
- 3. List all brands of your company that were/will be affected by French legislation on ingredients from 2009; average one-off costs per brand due to French legislation on ingredients; average change in variable costs per brand due to French legislation on ingredients; were there significant cost differences between brands for one-off costs; were there significant cost differences between brands for variable costs; if yes, what were the reasons?**
  - All four companies stated that the French legislation did not affect any of their brands, because it was directed specifically at two brands with overt candy/confectionary flavour which are not produced by any of the four companies. As such, there were no costs, and the subsequent questions related to French legislation were not applicable.
  
- 4. List all brands of your company that were/will be affected by Canadian legislation on ingredients from 2009.**

- One company stated that small blend changes were required on one brand which had just been introduced.
  - One company stated that five brands, all of which were traditionally-blended cigarettes, were affected by the legislation: the banned ingredients were removed, the amount of non-banned ingredients increased/kept constant and the tobacco composition changed. The company stated that this was only commercially possible because the brands were very small in Canada.
  - One company stated that two of its brands were affected.
  - One company stated that none of its brands were affected.
  - All four companies highlighted the fact that the reason for the low impact was the predominance of Virginia cigarettes in the Canadian market (which were unaffected by the ban). If the same ban were introduced in the EU, the impact would be extremely significant, because of the predominance of American Blend cigarettes in most countries.
5. **List all brands of your company that were/will be affected by US Family Smoking Prevention and Tobacco Control Act of 2009 that bans characterizing flavours; average one-off costs per brand due to US legislation on flavours?**
- All four companies stated that none of their brands were affected by this legislation. As such, there were no costs associated with this legislation.
6. **Was there a difference between one-off costs for changing the cigarettes of a brand due to law requirements in France in 2009 and any other country in the EU that subsequently introduced legislation on ingredients; if yes, what were the reasons; what are your main one-off costs associated with change of the legislation?**
- Because none of the companies were affected by the French legislation, all four stated that these questions were not applicable. However, three companies took the opportunity to generally discuss the costs of a legislated ingredients change. Every ingredients change requires a full redevelopment of the tobacco blend, consumer research and manufacturing change to satisfy consumers' demand. The level of cost is dependent on the type and scale of change, and could necessitate a reblend, a cigarette design change and significant testing and analysis. Ongoing costs would include having to change leaf sources.
  - One company emphasised that the main impact of legislation would not be the operational one-off costs, but rather the consumer demand shifts, market distortions, disadvantages for some tobacco companies (depending on product portfolio), flows towards illicit trade and negative knock-on effects on jobs (for retailers due to illicit trade and for tobacco growers due to reduced demand for Burley and Oriental tobacco).
7. **Have the cigarettes of a particular brand the same chemical composition and follow the same production process for all EU countries; if not, what are the main differences for your best-selling brand in EU?**
- One company answered in the negative, stating that leaf composition can vary because tobacco crops vary.
  - Two companies reported that in order to accommodate differing consumer tastes in different countries, different blends are sometimes used in the same brands (naming one brand which is American Blend in one country and Virginia Blend in another). Sugar levels and nicotine delivery can thus differ between countries.

- One of these companies also stated that due to different manufacturing equipment in factories, variation may occur; however, separate specifications are usually kept to a minimum and one single specification is usually used in many different countries.
- One company stated that all of its brands have virtually the same composition across the EU, but that minor adjustments may be necessary due to variations in tobacco crop.

**8. Would it be equally expensive for your company if the same ingredients levels would apply in all EU countries; if not, what would be the reasons?**

- All four companies noted that this would depend on the actual legislation, but interpreted the question in different ways.
- One company noted that this would depend on the levels of ingredients, so could not answer the question.
- One company stated that it would be more expensive if changes were required, because of new costs associated with introducing the change, monitoring compliance and adjusting various blends to comply with a uniform standard.
- One company stated that whilst the costs would wholly depend on the extent of regulatory change, in terms of economy of scale, complexity and compliance costs, a single regulation across Europe might be less expensive than member-state-level changes with different limits across each of the EU member states, as long as any ingredient regulation is proportionate and scientifically-based.
- One company noted that if this question refers to applying an existing ingredients regulation of one EU Member States to all EU Member States, this would make no difference, because the company already tries to comply with all Member State ingredients regulations cumulatively.

**9. Have you carried out any marketing studies on which consumers buy/consume which of your brands?**

- All four companies stated that they have carried out marketing studies on which consumers buy/consume which brands.
- Two of these stated that the studies were limited to adult smokers.<sup>267</sup>

**10. Have you carried out any studies on toxicity, addictiveness and attractiveness of certain ingredients?**

- **Toxicity:** All four companies carry out toxicity studies.
- **Addictiveness:** One company stated that it was not possible to evaluate addictiveness. A further company noted that it does not carry out addictiveness testing and is not aware of tests allowing it to do so, but that it has shared with regulatory and scientific bodies all available data and information on addictiveness. One company specified that it does not add ingredients that enhance addictiveness. One company did not address whether it carried out addictiveness tests.
- **Attractiveness:** Two companies stated that attractiveness was not possible to measure. One company stated that the data and information it has submitted to regulators and scientists on addictiveness address the question of attractiveness. One company did not address whether it carried out addictiveness tests.

**11. If yes, indicate the studies and please provide the links/copies**

---

<sup>267</sup> Note that this question was specified as a yes/no question, so the statement on adult smokers was merely additional information. This does not imply that the other two companies have carried out studies involving non-adult smokers.

- All four companies specified that they provide this information in the form of an annual report to each EU member state on an annual basis.
- Two companies additionally named the following studies:
  1. Baker RR, Pereira da Silva JR, Smith G. The effect of tobacco ingredients on smoke chemistry. Part I: Flavourings and additives. Food Chem Toxicol. 2004; 42 Suppl:S3-37.
  2. Baker RR, Pereira da Silva JR, Smith G. The effect of tobacco ingredients on smoke chemistry. Part II: casing ingredients. Food Chem Toxicol. 2004; 42 Suppl:S39-52.
  3. Baker RR, Massey ED, Smith G. An overview of the effects of tobacco ingredients on smoke chemistry and toxicity. Food Chem Toxicol. 2004; 42 Suppl:S53-83.
  4. Baker RR, Bishop LJ. The pyrolysis of tobacco ingredients. J. Anal. Appl. Pyrolysis 2004, 71, 223-311.
  5. Baker RR, Bishop LJ. The pyrolysis of non-volatile tobacco ingredients using a system that simulates cigarette combustion conditions. J. Anal. Appl. Pyrolysis 2005, 74, 145-170
  6. Philip Morris International's (PMI) Comments on the pre-consultation opinion of the Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) on "Addictiveness and Attractiveness of Tobacco Additives", September 2010; and
  7. Response to German Ministry of Consumer Protection's request for information on tobacco ingredients, May 2011

**12. According to your own estimation, which of your brands have the highest part of young smokers in the EU?**

- All four companies emphasised that they do not conduct any research into brand preferences of smokers under the age of 18.
- One company named its three highest-ranked brands for adults between the ages of 18 and 30, emphasising that one of the worst performers in this category was a slim cigarettes brand.

**13. What are the overall sugar levels of all your brands?**

- One company specified that sugar levels vary from blend to blend, but generally, as top line estimates, American blend brands (heavily reliant on the use of ingredients) carry between 8 and 10% sugar, whilst Virginia blend brand carry around 11-14% sugar.
- One company specified that it typically adds between 4 and 5% sugars to American blend cigarettes, but that American blend cigarettes tend to still have lower sugar levels than Virginia blend due to high naturally-occurring sugar levels in Virginia tobacco (up to 25%). In a recent study, this company found that amongst cigarettes produced by themselves and by other manufacturers, sugar levels varied from between 8.8% and 14.9%. The three brands with the highest sugar content were ones without added sugar; the three brands with the lowest sugar content were ones with added sugar.
- One company stated that this information was freely available on their website and provided regularly to authorities in Member States.
- One company stated that it understood that this question would be answered separately by CECCM on behalf of its members.



**14. Have these levels changed over time (since 2005); if yes, what were the reasons?**

- Two companies stated that sugar levels do not change significantly over time amongst their brands, as can be evidenced by by-brand disclosures submitted to Member States.
- One company referred to its regulatory submissions and did not want to disclose proprietary, trade secret information publicly.
- One company stated that it understood that this question would be answered separately by CECCM on behalf of its members.

**15. Which of your brands are currently marketed in EU as containing characterizing flavours and which flavours do they contain?**

- All four companies stated that they sell menthol cigarettes, but emphasised that this is a traditional flavour preferred by adult smokers. All four companies stated that they do not sell any other brands containing characterizing flavours.

**16. What are the one-off costs in relation to changing the appearance of cigarettes; what are the variable costs in relation to changing the appearance of cigarettes?**

- One company stated that if cigarettes were to be converted to one format, e.g. King Size, the costs would likely exceed €100m because of redesigns of product and packaging, write off of machines making non-KS formats and purchasing of new machines that meet the increased capacity requirements of KS. However, it would also present the opportunity to reduce manufacturing complexity and result in job losses due to the industry moving towards producing a standardised commodity, rather than a diversified portfolio.
- Three companies stated that they could not answer this question without clarification or further details as to what regulation mandating changing the appearance of cigarettes would entail.

**17. What are the main factors?**

- One company noted that a change could potentially affect the resourcing of leaf, changing paper, tipping, tow, plug, filter and packaging, along with factory and market write-offs and purchase of new machines.
- One company stated that the appearance of cigarettes differs according to the different printing of trademark-specific signs on cigarettes and/or the usage of different tipping filter materials. Whilst costs for monogram inks would not vary significantly if changes were required, variable costs associated with tipping paper changes could be substantial, depending on the regulation.
- Two companies did not answer this question.

**18. What are the one-off costs in relation to printing a health warning on the cigarettes?**

- One company stated that this would entail capital expenditure of up to €6 million (60 machines at €100,000 a machine).
- Three companies stated that they could not answer this question without more information, with one company questioning whether this was a feasible approach and wondering what the intended outcomes or public health objectives would be.

## Final Comments

- 1. Is all information provided correct and complete; if not, what are the reasons?**
  - All four companies stated that the information they provided is correct. The information is as comprehensive as possible, given the limited timeframe and commercial sensitivity issues.
  
- 2. Have you had a direct or indirect (e.g. via associations) contact with other cigarettes producers when replying to this questionnaire?**
  - All four companies stated that they had had limited contact with other companies and associations regarding process-related questions, but that competition law had been strictly adhered to.
  - One company stated that it had made some non-commercially sensitive answers available to the other three companies, whilst two companies stated that they had not shared any answers with other companies.

### 7.3 Appendix 3: Smoking Prevalence across the EU

Table 23: Percentage of adult cigarettes smokers

|                       | 2000  | 2001  | 2002  | 2003  | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Austria</b>        | 28.7% | 28.7% | 28.7% | 28.4% | 28.3% | 28.3% | 28.2% | 28.0% | 27.9% | 27.7% | 27.7% |
| <b>Belgium</b>        | 29.8% | 26.8% | 27.9% | 26.4% | 27.4% | 28.3% | 26.8% | 25.4% | 24.9% | 23.6% | 21.9% |
| <b>Bulgaria</b>       | 36.9% | 37.2% | 37.1% | 37.1% | 37.3% | 37.4% | 37.6% | 37.8% | 37.6% | 37.8% | 37.9% |
| <b>Czech Republic</b> | 29.7% | 28.4% | 28.5% | 28.0% | 28.2% | 27.2% | 26.4% | 26.1% | 25.7% | 25.6% | 25.8% |
| <b>Denmark</b>        | 30.5% | 29.9% | 28.5% | 26.9% | 25.5% | 26.0% | 24.5% | 23.7% | 23.0% | 22.2% | 21.5% |
| <b>Estonia</b>        | 30.7% | 30.6% | 30.6% | 33.1% | 33.5% | 33.8% | 31.2% | 30.3% | 29.7% | 28.9% | 28.4% |
| <b>Finland</b>        | 23.1% | 22.3% | 22.0% | 21.9% | 22.0% | 21.7% | 21.8% | 20.8% | 20.3% | 19.8% | 19.3% |
| <b>France</b>         | 31.8% | 30.4% | 30.1% | 29.5% | 28.8% | 28.6% | 28.4% | 26.8% | 25.8% | 25.6% | 24.7% |
| <b>Germany</b>        | 25.4% | 25.1% | 24.9% | 24.7% | 24.5% | 24.4% | 24.1% | 23.7% | 23.5% | 23.2% | 23.0% |
| <b>Greece</b>         | 38.2% | 38.2% | 38.3% | 38.3% | 38.5% | 38.7% | 39.0% | 39.4% | 40.1% | 40.0% | 39.7% |
| <b>Hungary</b>        | 33.5% | 34.1% | 33.5% | 33.2% | 33.0% | 32.9% | 32.8% | 32.7% | 32.5% | 32.4% | 32.3% |
| <b>Ireland</b>        | 23.1% | 22.9% | 22.5% | 22.3% | 20.1% | 20.1% | 20.1% | 19.7% | 19.5% | 18.8% | 18.4% |
| <b>Italy</b>          | 29.1% | 29.0% | 27.8% | 27.8% | 27.2% | 26.3% | 25.0% | 23.4% | 23.2% | 25.4% | 21.6% |
| <b>Latvia</b>         | 34.4% | 33.9% | 33.5% | 32.6% | 31.8% | 31.0% | 30.6% | 29.9% | 29.2% | 29.0% | 28.2% |
| <b>Lithuania</b>      | 32.0% | 31.8% | 31.7% | 31.4% | 31.3% | 31.5% | 30.2% | 29.1% | 28.3% | 26.0% | 23.6% |
| <b>Netherlands</b>    | 32.5% | 34.5% | 33.5% | 32.9% | 27.9% | 28.7% | 27.9% | 27.4% | 26.7% | 26.0% | 25.9% |
| <b>Poland</b>         | 32.1% | 32.1% | 32.1% | 28.6% | 28.3% | 28.3% | 28.4% | 28.6% | 28.4% | 28.4% | 28.7% |
| <b>Portugal</b>       | 21.2% | 21.1% | 21.0% | 20.9% | 20.8% | 20.8% | 20.6% | 20.6% | 20.7% | 20.2% | 20.0% |
| <b>Romania</b>        | 20.8% | 21.8% | 25.7% | 29.5% | 29.9% | 29.8% | 30.1% | 29.9% | 29.3% | 28.4% | 28.3% |
| <b>Slovakia</b>       | 38.0% | 37.1% | 34.0% | 31.6% | 33.2% | 32.3% | 32.5% | 32.8% | 32.3% | 31.9% | 31.9% |
| <b>Slovenia</b>       | 35.2% | 34.9% | 34.5% | 34.0% | 33.8% | 33.8% | 26.3% | 24.9% | 24.3% | 24.0% | 23.8% |
| <b>Spain</b>          | 34.2% | 34.4% | 31.7% | 28.1% | 27.9% | 27.4% | 26.4% | 26.1% | 25.2% | 24.1% | 23.6% |
| <b>Sweden</b>         | 18.9% | 18.9% | 18.2% | 17.7% | 17.1% | 16.0% | 15.0% | 14.4% | 12.9% | 12.2% | 12.5% |
| <b>United Kingdom</b> | 26.4% | 25.9% | 24.4% | 22.7% | 22.9% | 21.5% | 21.0% | 21.2% | 19.8% | 20.5% | 20.5% |

## 7.4 Appendix 4: Calculation of the Total Variable Costs For Packaging and Labelling

1. The total variable cost of EU-destined cigarette production for an anonymous company is €5 billion.<sup>268</sup>

Assumption: "All Big Four companies have the same cost structure".<sup>269</sup> Not enough information is available to deduce a cost structure for SMEs.

2. Big Four tobacco companies make up 91% of the EU cigarettes market in volume terms.<sup>270</sup>
3. Big Four annual variable costs are thus €4.55 billion (91% of €5 billion).
4. Individual variable costs, as reported by one respondent to the questionnaire submitted to industry are:
  - 48% leaf tobacco
  - 37% direct materials (this includes: cigarette paper, hinge lids, wrapping material, filters, cartons, inks)
  - 15% conversion costs (labour and manufacturing overhead costs)
5. The above implies that the variable costs for the Big Four have the following values:
  - 48% is equivalent to €2.18 billion
  - 37% is equivalent to €1.68 billion
  - 15% is equivalent to €0.68 billion

As direct costs do not exclusively include labelling and packaging costs, this implies that implies that **Big Four direct material costs are less than €1.68 billion.**

---

<sup>268</sup> Single response to Questionnaire submitted to industry.

<sup>269</sup> Given the fact that non-Big Four tobacco companies are substantially smaller (with only 9% of the market) and thus of an entirely different nature, we do not make the assumption that *all* tobacco companies have the same cost structure.

<sup>270</sup> Source: Euromonitor

## 7.5 Appendix 5: Interviews Topic Guide

### Introduction:

Matrix Insight has been commissioned by the European Commission's Executive Agency for Health and Consumers (EAHC) to undertake an analysis of the EU market of tobacco, nicotine and related products. The analysis will provide the EC with a robust evidence base to feed into the problem definition of the Impact Assessment team involved in the revision of the Tobacco Products Directive (2001/37/EC). It would also provide a sound starting point to determine internal market aspects of various policy options considered in the context of the review of the Tobacco Products Directive.

As part of this study, we are trying to gain better understanding and gather robust data on the (xx) market in Europe, more specifically: the overall market size (and market value) of (xx) and the main dynamics that characterise the (xx) market (including intra-EU trade).

### Topic guide:

1. Do you have any reliable data (or can you point us to any reliable data) about the size the (xx) market in Europe?
  - companies operating in the European market overall and/or by member states
  - characteristics of these companies –size of the companies, who owns them, number of employees...?
  - how long have these companies been operating
  - how do they sale (online, retail network)
2. Can you provide us with any data on past and current sales of (xx) in Europe (or UK, or your country, or for your company)?
3. For e-cigarettes: Can you provide us with information about manufacturers of electronic cigarettes (devices, e-liquids, spare parts, accessories, etc.), and where are they established.
  - What volume of e-cigarettes (and/or e-liquids) are they importing to Europe (or UK, or your country)?
4. Can you provide us with any information about intra-EU sales?
5. Can you please explain what is your position about any regulatory initiatives affecting the (xx) market in Europe?
6. Is there anything else you would like to add that you think could be of value for our study?

## 7.6 Appendix 6: Market value of tobacco across EU-27

Table 24 outlines the total value of the cigarette and roll your own market in EU-27 and the corresponding VAT tax rates and excise tax collected in order to calculate the non-tax market value of the tobacco market.

**Table 24: Market value of tobacco EU-27(in €m)**

| Member State               | Total market value based on consumption (i.e. Includes non domestic tobacco) EUR million |        | VAT tax rate | VAT tax collected |        |
|----------------------------|--|--------|--------------|-------------------|--------|
|                            | Cigarettes   | RYO    |              | Cigarettes        | RYO    |
| Austria                    | €2,768   | €55    | 16.67%       | €461              | €9     |
| Belgium                    | €2,504   | €688   | 17.36%       | €435              | €119   |
| Bulgaria                   | €1,557   | €1     | 16.67%       | €260              | €0     |
| Cyprus                     | €173   | €1     | 15.04%       | €26               | €0     |
| Czech Republic             | €2,936   | €161   | 16.67%       | €489              | €27    |
| Denmark                    | €1,604   | €53    | 20.00%       | €321              | €11    |
| Estonia                    | €194   | €0     | 16.67%       | €32               | €0     |
| Finland                    | €1,047   | €85    | 18.70%       | €196              | €16    |
| France                     | €14,659  | €1,295 | 16.39%       | €2,403            | €212   |
| Germany                    | €19,473  | €2,583 | 15.97%       | €3,110            | €413   |
| Greece                     | €4,685   | €208   | 18.70%       | €876              | €39    |
| Hungary                    | €1,506   | €161   | 20.00%       | €301              | €32    |
| Ireland                    | €1,629   | €77    | 17.36%       | €283              | €13    |
| Italy                      | €18,218  | €211   | 16.67%       | €3,037            | €35    |
| Latvia                     | €204   | €2     | 18.03%       | €37               | €0     |
| Lithuania                  | €269   | €1     | 17.36%       | €47               | €0     |
| Luxembourg                 | €104   | €34    | 13.04%       | €14               | €4     |
| Malta                      | €85  | €1     | 15.25%       | €13               | €0     |
| Netherlands                | €2,818   | €1,249 | 15.97%       | €450              | €199   |
| Poland                     | €5,960   | €246   | 18.70%       | €1,115            | €46    |
| Portugal                   | €1,928   | €59    | 18.70%       | €360              | €11    |
| Romania                    | €3,594   | €0     | 19.35%       | €695              | €0     |
| Slovakia                   | €983   | €1     | 16.97%       | €167              | €0     |
| Slovenia                   | €639   | €4     | 16.67%       | €106              | €1     |
| Spain                      | €14,109  | €524   | 15.25%       | €2,152            | €80    |
| Sweden                     | €1,408   | €149   | 20.00%       | €282              | €30    |
| United Kingdom             | €16,211  | €1,437 | 16.67%       | €2,702            | €240   |
| Total value                | €121,264   | €9,287 | -            | €20,369           | €1,539 |
| Total excise tax collected | -  | -      | -            | €72,519           | €4,734 |

Table 25: Post-tax market value of tobacco EU-27 (in €m)

| Parameter  | Cigarettes      | RYO            | Total           |
|--|-----------------|----------------|-----------------|
| Total market value of tobacco                    | € 121,264       | € 9,287        | € 130,551       |
| Total VAT  | € 20,369        | € 1,539        | € 21,907        |
| <b>Total Excise tax collected</b>                | € 72,519        | € 4,734        | € 77,253        |
| <b>Post tax market value</b>                     | <b>€ 28,376</b> | <b>€ 6,210</b> | <b>€ 31,391</b> |
| Retail and wholesale margins                     | 40%             | 40%            | 40%             |
| <b>Post retail/wholesale margin market value</b> | <b>€ 17,026</b> | <b>€ 3,726</b> | <b>€ 18,834</b> |

## 7.7 Appendix 7: I-O Multipliers per Industry

Table X outlines the I-O multipliers per industry for tobacco and all sectors associated with increase in consumption of non-tobacco products.

**Table 26: I-O multipliers**

| Input Industries   | I-O multipliers per output |                             |                       |  |   |                               |                             |
|--|----------------------------|-----------------------------|-----------------------|--|---|-------------------------------|-----------------------------|
|  | Tobacco products           | Food products and beverages | Wearing apparel; furs | Furniture; other manufactured goods n.e.c. | Electrical energy, gas, steam and hot water | Hotel and restaurant services | Post and telecommunications |
| Products of agriculture, hunting and related services  | 0.127                      | 0.282                       | 0.031                 | 0.026                                      | 0.015                                       | 0.078                         | 0.020                       |
| Products of forestry, logging and related services   | 0.004                      | 0.003                       | 0.002                 | 0.020                                      | 0.002                                       | 0.002                         | 0.001                       |
| Fish and other fishing products; services incidental of fishing                                    | 0.001                      | 0.005                       | 0.001                 | 0.001                                      | 0.000                                       | 0.005                         | 0.001                       |
| Coal and lignite; peat   | 0.001                      | 0.002                       | 0.002                 | 0.002                                      | 0.022                                       | 0.002                         | 0.001                       |
| Crude petroleum and natural gas; services incidental to oil and gas extraction excluding surveying | 0.007                      | 0.010                       | 0.008                 | 0.009                                      | 0.076                                       | 0.008                         | 0.006                       |
| Uranium and thorium ores   | 0.000                      | 0.000                       | 0.000                 | 0.000                                      | 0.000                                       | 0.000                         | 0.000                       |
| Metal ores   | 0.000                      | 0.001                       | 0.000                 | 0.002                                      | 0.002                                       | 0.000                         | 0.000                       |
| Other mining and quarrying products  | 0.001                      | 0.003                       | 0.002                 | 0.003                                      | 0.002                                       | 0.002                         | 0.001                       |
| Food products and beverages  | 0.062                      | 1.289                       | 0.066                 | 0.064                                      | 0.036                                       | 0.247                         | 0.052                       |
| Tobacco products   | 1.043                      | 0.001                       | 0.001                 | 0.001                                      | 0.001                                       | 0.001                         | 0.001                       |
| Textiles   | 0.008                      | 0.007                       | 0.228                 | 0.027                                      | 0.004                                       | 0.009                         | 0.005                       |
| Wearing apparel; furs  | 0.004                      | 0.005                       | 1.080                 | 0.006                                      | 0.003                                       | 0.006                         | 0.005                       |
| Leather and leather products   | 0.002                      | 0.003                       | 0.018                 | 0.012                                      | 0.002                                       | 0.003                         | 0.002                       |
| Wood and products of wood and cork (except furniture); articles of straw and plaiting materials    | 0.010                      | 0.011                       | 0.007                 | 0.137                                      | 0.007                                       | 0.008                         | 0.006                       |
| Pulp, paper and paper products   | 0.071                      | 0.034                       | 0.018                 | 0.025                                      | 0.009                                       | 0.016                         | 0.012                       |
| Printed matter and recorded media  | 0.024                      | 0.021                       | 0.023                 | 0.024                                      | 0.013                                       | 0.019                         | 0.024                       |
| Coke, refined petroleum products and nuclear fuels   | 0.023                      | 0.037                       | 0.028                 | 0.033                                      | 0.044                                       | 0.028                         | 0.022                       |
| Chemicals, chemical products and man-made fibres   | 0.036                      | 0.054                       | 0.052                 | 0.064                                      | 0.023                                       | 0.032                         | 0.021                       |



| Input Industries   | I-O multipliers per output |                             |                       |  |   |                               |                                     |
|--|----------------------------|-----------------------------|-----------------------|--|---|-------------------------------|-------------------------------------|
|  | Tobacco products           | Food products and beverages | Wearing apparel; furs | Furniture; other manufactured goods n.e.c. | Electrical energy, gas, steam and hot water | Hotel and restaurant services | Post and telecommunication services |
| Rubber and plastic products  | 0.017                      | 0.034                       | 0.024                 | 0.046                                      | 0.012                                       | 0.016                         | 0.016                               |
| Other non-metallic mineral products  | 0.007                      | 0.019                       | 0.010                 | 0.018                                      | 0.011                                       | 0.013                         | 0.011                               |
| Basic metals   | 0.014                      | 0.019                       | 0.017                 | 0.072                                      | 0.021                                       | 0.014                         | 0.013                               |
| Fabricated metal products, except machinery and equipment  | 0.021                      | 0.036                       | 0.026                 | 0.075                                      | 0.029                                       | 0.021                         | 0.018                               |
| Machinery and equipment n.e.c.   | 0.019                      | 0.026                       | 0.021                 | 0.035                                      | 0.025                                       | 0.017                         | 0.014                               |
| Office machinery and computers   | 0.002                      | 0.002                       | 0.002                 | 0.002                                      | 0.002                                       | 0.002                         | 0.003                               |
| Electrical machinery and apparatus n.e.c.  | 0.008                      | 0.010                       | 0.009                 | 0.015                                      | 0.027                                       | 0.010                         | 0.020                               |
| Radio, television and communication equipment and apparatus  | 0.004                      | 0.005                       | 0.005                 | 0.008                                      | 0.004                                       | 0.005                         | 0.030                               |
| Medical, precision and optical instruments, watches and clocks   | 0.002                      | 0.003                       | 0.003                 | 0.004                                      | 0.004                                       | 0.003                         | 0.004                               |
| Motor vehicles, trailers and semi-trailers   | 0.020                      | 0.026                       | 0.025                 | 0.035                                      | 0.016                                       | 0.025                         | 0.022                               |
| Other transport equipment  | 0.005                      | 0.005                       | 0.007                 | 0.006                                      | 0.003                                       | 0.004                         | 0.004                               |
| Furniture; other manufactured goods n.e.c.   | 0.007                      | 0.009                       | 0.012                 | 1.056                                      | 0.007                                       | 0.011                         | 0.008                               |
| Secondary raw materials  | 0.001                      | 0.002                       | 0.002                 | 0.004                                      | 0.001                                       | 0.001                         | 0.001                               |
| Electrical energy, gas, steam and hot water  | 0.054                      | 0.075                       | 0.063                 | 0.066                                      | 1.303                                       | 0.062                         | 0.046                               |
| Collected and purified water, distribution services of water   | 0.004                      | 0.007                       | 0.005                 | 0.005                                      | 0.004                                       | 0.006                         | 0.003                               |
| Construction work  | 0.028                      | 0.035                       | 0.037                 | 0.035                                      | 0.047                                       | 0.038                         | 0.051                               |
| Trade, maintenance and repair services of motor vehicles and motorcycles; retail sale of automotive fuel         | 0.027                      | 0.037                       | 0.034                 | 0.037                                      | 0.020                                       | 0.033                         | 0.027                               |
| Wholesale trade and commission trade services, except of motor vehicles and motorcycles                          | 0.090                      | 0.149                       | 0.144                 | 0.152                                      | 0.064                                       | 0.110                         | 0.065                               |
| Retail trade services, except of motor vehicles and motorcycles; repair services of personal and household goods | 0.052                      | 0.075                       | 0.073                 | 0.074                                      | 0.035                                       | 0.068                         | 0.048                               |
| Hotel and restaurant services  | 0.040                      | 0.048                       | 0.052                 | 0.053                                      | 0.031                                       | 1.055                         | 0.045                               |
| Land transport; transport via pipeline services  | 0.052                      | 0.077                       | 0.065                 | 0.078                                      | 0.040                                       | 0.049                         | 0.038                               |
| Water transport services   | 0.005                      | 0.007                       | 0.006                 | 0.007                                      | 0.007                                       | 0.005                         | 0.005                               |
| Air transport services   | 0.009                      | 0.009                       | 0.009                 | 0.009                                      | 0.006                                       | 0.008                         | 0.011                               |
| domporting and auxiliary transport services; travel agency services  | 0.039                      | 0.054                       | 0.048                 | 0.050                                      | 0.027                                       | 0.041                         | 0.038                               |
| Post and telecommunication services  | 0.033                      | 0.040                       | 0.043                 | 0.042                                      | 0.030                                       | 0.044                         | 1.177                               |

| Input Industries   | I-O multipliers per output |                             |                       |  |   |                               |                                     |
|--|----------------------------|-----------------------------|-----------------------|--|---|-------------------------------|-------------------------------------|
|  | Tobacco products           | Food products and beverages | Wearing apparel; furs | Furniture; other manufactured goods n.e.c. | Electrical energy, gas, steam and hot water | Hotel and restaurant services | Post and telecommunication services |
| Financial intermediation services, except insurance and pension funding services                 | 0.060                      | 0.065                       | 0.064                 | 0.063                                      | 0.044                                       | 0.061                         | 0.053                               |
| Insurance and pension funding services, except compulsory social security services               | 0.021                      | 0.026                       | 0.024                 | 0.026                                      | 0.017                                       | 0.024                         | 0.022                               |
| Services auxiliary to financial intermediation   | 0.014                      | 0.017                       | 0.017                 | 0.017                                      | 0.011                                       | 0.016                         | 0.017                               |
| Real estate services   | 0.098                      | 0.116                       | 0.129                 | 0.129                                      | 0.074                                       | 0.147                         | 0.118                               |
| Renting services of machinery and equipment without operator and of personal and household goods | 0.018                      | 0.027                       | 0.025                 | 0.025                                      | 0.022                                       | 0.020                         | 0.023                               |
| Computer and related services  | 0.023                      | 0.024                       | 0.024                 | 0.024                                      | 0.019                                       | 0.022                         | 0.048                               |
| Research and development services  | 0.012                      | 0.012                       | 0.011                 | 0.014                                      | 0.009                                       | 0.008                         | 0.017                               |
| Other business services  | 0.231                      | 0.200                       | 0.178                 | 0.175                                      | 0.125                                       | 0.158                         | 0.165                               |
| Public administration and defence services; compulsory social security services                  | 0.007                      | 0.006                       | 0.006                 | 0.007                                      | 0.013                                       | 0.006                         | 0.005                               |
| Education services   | 0.011                      | 0.011                       | 0.011                 | 0.011                                      | 0.008                                       | 0.011                         | 0.013                               |
| Health and social work services  | 0.015                      | 0.019                       | 0.018                 | 0.018                                      | 0.011                                       | 0.019                         | 0.016                               |
| Sewage and refuse disposal services, sanitation and similar services                             | 0.010                      | 0.015                       | 0.012                 | 0.013                                      | 0.010                                       | 0.014                         | 0.009                               |
| Membership organisation services n.e.c.  | 0.003                      | 0.004                       | 0.003                 | 0.003                                      | 0.003                                       | 0.004                         | 0.003                               |
| Recreational, cultural and sporting services   | 0.026                      | 0.023                       | 0.026                 | 0.023                                      | 0.014                                       | 0.025                         | 0.023                               |
| Other services   | 0.012                      | 0.012                       | 0.012                 | 0.014                                      | 0.010                                       | 0.014                         | 0.011                               |
| Private households with employed persons   | 0.003                      | 0.003                       | 0.004                 | 0.004                                      | 0.002                                       | 0.004                         | 0.003                               |
| Compensation of employees  | 0.496                      | 0.589                       | 0.633                 | 0.662                                      | 0.379                                       | 0.631                         | 0.558                               |
| <b>Total</b>   | <b>3.048</b>               | <b>3.742</b>                | <b>3.504</b>          | <b>3.670</b>                               | <b>2.807</b>                                | <b>3.311</b>                  | <b>3.007</b>                        |

## 7.8 Appendix 8: Hypothetical Example of I-O model

A hypothetical I-O model is explained in detail through steps 1-6 below. The example is taken from The Economic Impacts of Historic Preservation (1997).

**Step 1:** Identify Inter-industry transition matrix. The inter-industry matrix provides a summary of the flow of goods and services between sectors within an economy. For example in the agriculture industry purchases from €40 and €15 from the manufacturing and services industry respectively in order to produce an output of €100.

| Inter-industry matrix |               | Output Industries |               |          |       |              |              |
|-----------------------|---------------|-------------------|---------------|----------|-------|--------------|--------------|
|                       |               | Agriculture       | Manufacturing | Services | Other | Final demand | Total output |
| Input Industries      | Agriculture   | €10               | €65           | €10      | €5    | €10          | €100         |
|                       | Manufacturing | €40               | €25           | €35      | €75   | €10          | €200         |
|                       | Services      | €15               | €5            | €5       | €5    | €25          | €120         |
|                       | Other         | €15               | €10           | €50      | €50   | €90          | €225         |
|                       | Value added   | €20               | €95           | €20      | €90   | -            | -            |
|                       | Total input   | €100              | €200          | €120     | €225  | -            | -            |

**Step 2:** Calculate the direct requirement matrix using the inter-industry matrix. The direct requirement matrix is calculated by dividing each cell in the column of the inter-industry matrix by its total value. For example, in order to produce one unit of agriculture 40 per cent of expenditure is spent on manufacturing – i.e.  $€40/€100 = 0.40$ .

| Direct requirement matrix |               | Output Industries |               |          |       |
|---------------------------|---------------|-------------------|---------------|----------|-------|
|                           |               | Agriculture       | Manufacturing | Services | Other |
| Input Industries          | Agriculture   | 0.10              | 0.33          | 0.08     | 0.02  |
|                           | Manufacturing | 0.40              | 0.13          | 0.29     | 0.33  |
|                           | Services      | 0.15              | 0.03          | 0.04     | 0.02  |
|                           | Other         | 0.15              | 0.05          | 0.42     | 0.22  |

**Step 3:** Calculate the total requirement matrix. The total requirement matrix is calculated by subtracting the identity matrix from the direct requirement matrix. Below the identity matrix is provided first, and then the corresponding total requirement matrix. For example, within the total requirement matrix the coefficient for manufacturing within the agriculture output sector equals 0.40 (from direct requirement matrix above) – 0 (from identity matrix below) = -0.40.

| Identity matrix  |               | Output Industries |               |          |       |
|------------------|---------------|-------------------|---------------|----------|-------|
|                  |               | Agriculture       | Manufacturing | Services | Other |
| Input Industries | Agriculture   | 1.0               | 0.0           | 0.0      | 0.0   |
|                  | Manufacturing | 0.0               | 1.0           | 0.0      | 0.0   |
|                  | Services      | 0.0               | 0.0           | 1.0      | 0.0   |
|                  | Other         | 0.0               | 0.0           | 0.0      | 1.0   |

| Total requirement matrix |               | Output Industries |               |          |       |
|--------------------------|---------------|-------------------|---------------|----------|-------|
|                          |               | Agriculture       | Manufacturing | Services | Other |
| Input Industries         | Agriculture   | 0.90              | -0.33         | -0.08    | -0.02 |
|                          | Manufacturing | -0.40             | 0.87          | -0.29    | -0.33 |
|                          | Services      | -0.15             | -0.03         | 0.96     | -0.02 |
|                          | Other         | -0.15             | -0.05         | -0.42    | 0.78  |

**Step 4.** Calculate the inverse of the total requirement matrix to obtain the I-O multipliers. This can easily be done using the “MINVERSE” functionality within Excel.

| I-O multipliers  |               | Output Industries |               |          |       |
|------------------|---------------|-------------------|---------------|----------|-------|
|                  |               | Agriculture       | Manufacturing | Services | Other |
| Input Industries | Agriculture   | 1.5               | 0.6           | 0.4      | 0.3   |
|                  | Manufacturing | 1.0               | 1.6           | 0.9      | 0.7   |
|                  | Services      | 0.3               | 0.1           | 1.2      | 0.1   |
|                  | Other         | 0.5               | 0.3           | 0.8      | 1.4   |

**Step 5.** Using the multiplier associated with the output industry, calculate the monetary impact on each input industry for a given reduction in value of the output industry. For example, assume the agriculture industry were to face a loss of €100,000 – this would imply a €330,000 loss in production overall. The fact that a €100,000 loss to the industry generates a €300,000 loss overall is due to the fact that the I-O model accounts for direct and indirect effects.

| Input industries | Multipliers* | Monetary loss agriculture industry is facing | Impact on input industry due to loss in agriculture |
|------------------|--------------|--|---|
|                  | Agriculture  |  |   |
| Agriculture      | 1.5          | -€100,000                                    | €150,000  |
| Manufacturing    | 1.0          | -€100,000                                    | €100,000  |
| Services         | 0.3          | -€100,000                                    | €30,000   |
| Other            | 0.5          | -€100,000                                    | €50,000   |

**Step 6.** Convert the monetary loss within each industry into jobs lost using the employment-output ratio. The employment output ratio is an estimate of the production value of each employee within an industry. This can be calculated by dividing the impact on each input industry by the employment output ratio. For example, assume the employment-output ratio for agriculture, manufacturing, services, and other is €500 per employee.

| Impact on input industry due to loss in agriculture | Employment output ratio | Job loss |
|---|-------------------------|----------|
| €150,000  | €500                    | 300      |
| €100,000  | €500                    | 200      |
| €30,000   | €500                    | 60       |
| €50,000   | €500                    | 100      |

## 7.9 Appendix 9: Employment-Output Ratios

**Table 27: Employment-output ratios**

| Industry   | Total output value of industry (€m, 2007 prices) | Total jobs in sector (1,000's) | Output per employee |
|--|--|--------------------------------|---------------------|
| Products of agriculture, hunting and related services  | € 370,600  | 8934                           | € 41,482            |
| Products of forestry, logging and related services   | € 35,872   | 477                            | € 75,187            |
| Fish and other fishing products; services incidental of fishing                                    | € 12,868   | 161                            | € 79,974            |
| Coal and lignite; peat   | € 16,032   | 343                            | € 46,686            |
| Crude petroleum and natural gas; services incidental to oil and gas extraction excluding surveying | € 95,434   | 86                             | € 1,110,995         |
| Uranium and thorium ores   | € 31   | 30                             | € 1,036             |
| Metal ores   | € 9,459  | 56                             | € 169,822           |
| Other mining and quarrying products  | € 40,379   | 230                            | € 175,563           |
| Food products and beverages  | € 871,437  | 4766                           | € 182,833           |
| Tobacco products   | € 15,799   | 59                             | € 268,692           |
| Textiles   | € 109,482  | 742                            | € 147,650           |
| Wearing apparel; furs  | € 89,148   | 1315                           | € 67,788            |
| Leather and leather products   | € 53,156   | 434                            | € 122,367           |
| Wood and products of wood and cork (except furniture); articles of straw and plaiting materials    | € 138,690  | 1137                           | € 121,957           |
| Pulp, paper and paper products   | € 172,419  | 652                            | € 264,407           |
| Printed matter and recorded media  | € 245,091  | 964                            | € 254,323           |
| Coke, refined petroleum products and nuclear fuels   | € 355,178  | 221                            | € 1,610,782         |
| Chemicals, chemical products and man-made fibres   | € 650,349  | 1382                           | € 470,688           |
| Rubber and plastic products  | € 254,181  | 1579                           | € 161,017           |
| Other non-metallic mineral products  | € 241,968  | 1381                           | € 175,225           |
| Basic metals   | € 415,984  | 1283                           | € 324,228           |
| Fabricated metal products, except machinery and equipment  | € 502,419  | 3737                           | € 134,434           |
| Machinery and equipment n.e.c.   | € 655,373  | 2925                           | € 224,036           |
| Office machinery and computers   | € 68,199   | 1170                           | € 58,290            |
| Electrical machinery and apparatus n.e.c.  | € 278,878  | 1403                           | € 198,829           |

| Industry   | Total output value of industry (€m, 2007 prices) | Total jobs in sector (1,000's) | Output per employee |
|--|--|--------------------------------|---------------------|
| Radio, television and communication equipment and apparatus  | € 161,390  | 1291                           | € 125,011           |
| Medical, precision and optical instruments, watches and clocks   | € 152,284  | 5357                           | € 28,427            |
| Motor vehicles, trailers and semi-trailers   | € 707,857  | 3001                           | € 235,897           |
| Other transport equipment  | € 197,146  | 941                            | € 209,619           |
| Furniture; other manufactured goods n.e.c.   | € 188,178  | 2294                           | € 82,027            |
| Secondary raw materials  | € 23,135   | 500                            | € 46,271            |
| Electrical energy, gas, steam and hot water  | € 555,566  | 1654                           | € 335,893           |
| Collected and purified water, distribution services of water   | € 53,452   | 459                            | € 116,428           |
| Construction work  | € 1,835,296                                      | 18389                          | € 99,802            |
| Trade, maintenance and repair services of motor vehicles and motorcycles; retail sale of automotive fuel         | € 442,211  | 3907                           | € 113,187           |
| Wholesale trade and commission trade services, except of motor vehicles and motorcycles                          | € 1,136,346                                      | 7158                           | € 158,763           |
| Retail trade services, except of motor vehicles and motorcycles; repair services of personal and household goods | € 819,087  | 18537                          | € 44,187            |
| Hotel and restaurant services  | € 656,910  | 9128                           | € 71,967            |
| Land transport; transport via pipeline services  | € 562,029  | 5799                           | € 96,918            |
| Water transport services   | € 120,542  | 291                            | € 413,808           |
| Air transport services   | € 126,809  | 453                            | € 280,118           |
| domporting and auxiliary transport services; travel agency services  | € 474,111  | 559                            | € 848,748           |
| Post and telecommunication services  | € 464,558  | 1781                           | € 260,885           |
| Financial intermediation services, except insurance and pension funding services                                 | € 669,422  | 3863                           | € 173,309           |
| Insurance and pension funding services, except compulsory social security services                               | € 306,994  | 1368                           | € 224,427           |
| Services auxiliary to financial intermediation   | € 210,225  | 1256                           | € 167,350           |
| Real estate services   | € 1,651,715                                      | 1627                           | € 1,015,253         |
| Renting services of machinery and equipment without operator and of personal and household goods                 | € 231,775  | 428                            | € 541,656           |
| Computer and related services  | € 419,528  | 2603                           | € 161,189           |
| Research and development services  | € 190,249  | 852                            | € 223,323           |
| Other business services  | € 1,703,025                                      | 1381                           | € 1,233,093         |
| Public administration and defence services; compulsory social security services                                  | € 1,003,999                                      | 15216                          | € 65,985            |
| Education services   | € 702,222  | 15944                          | € 44,043            |
| Health and social work services  | € 1,155,107                                      | 22082                          | € 52,310            |

| Industry   | Total output value of industry (€m, 2007 prices) | Total jobs in sector (1,000's) | Output per employee |
|--|--|--------------------------------|---------------------|
| Sewage and refuse disposal services, sanitation and similar services | € 161,431  | 1123                           | € 143,698           |
| Membership organisation services n.e.c.                              | € 88,539   | 1697                           | € 52,174            |
| Recreational, cultural and sporting services                         | € 390,994  | 3297                           | € 118,587           |
| Other services   | € 153,044  | 3405                           | € 44,953            |
| Private households with employed persons                             | € 54,850   | 2565                           | € 21,385            |



## 7.10 Appendix 10: Employment Results

### 7.10.1 Results: Reduction in tobacco consumption of 1.0 per cent

**Table 28: The impact on employment associated with a reduction in consumption of 1.0 per cent**

| Industry                     | Monetary impact of reduction in tobacco consumption | Monetary impact of increase in expenditure for other goods | Net effect on output | Employment impact of reduction in tobacco expenditure | Employment impact of increase in expenditure for other goods | Net effect on employment |
|------------------------------|---|--|----------------------|---|--|--------------------------|
| <b>TOTAL</b>                 | <b>-€0.574</b>                                      | <b>€0.634</b>  | <b>€0.059</b>        | <b>-2,851</b>   | <b>3,968</b>   | <b>1,117</b>             |
| Agriculture                  | -€0.025   | €0.017   | -€0.008              | -589  | 399  | -191                     |
| Mining and petroleum         | -€0.002   | €0.006   | €0.005               | -8  | 34   | 26                       |
| Food industries              | -€0.012   | €0.067   | €0.054               | -67   | 366  | 300                      |
| Tobacco                      | -€0.197   | €0.000   | -€0.196              | -731  | 1  | -731                     |
| Textile                      | -€0.002   | €0.022   | €0.019               | -22   | 280  | 258                      |
| Leather and leather products | €0.000  | €0.001   | €0.000               | -4  | 7  | 4                        |
| Wood and wood products       | -€0.003   | €0.018   | €0.015               | -32   | 206  | 174                      |
| Paper products and printing  | -€0.018   | €0.007   | -€0.011              | -68   | 28   | -41                      |
| Chemical products            | -€0.011   | €0.014   | €0.003               | -17   | 21   | 4                        |
| Oil products                 | €0.000  | €0.000   | €0.000               | 0   | 0  | 0                        |
| Rubber products              | -€0.003   | €0.005   | €0.002               | -20   | 31   | 11                       |
| Metal and non metal products | -€0.004   | €0.009   | €0.005               | -16   | 35   | 19                       |
| Basic metal products         | -€0.004   | €0.008   | €0.004               | -30   | 59   | 29                       |
| Machinery                    | -€0.005   | €0.009   | €0.004               | -29   | 48   | 20                       |
| Transport devices            | -€0.025   | €0.057   | €0.033               | -138  | 288  | 149                      |

| Industry                                  | Monetary impact of reduction in tobacco consumption | Monetary impact of increase in expenditure for other goods | Net effect on output | Employment impact of reduction in tobacco expenditure | Employment impact of increase in expenditure for other goods | Net effect on employment |
|---|---|--|----------------------|---|--|--------------------------|
| Miscellaneous                             | -€0.001   | €0.003   | €0.001               | -28   | 61   | 32                       |
| Electricity                               | -€0.011   | €0.070   | €0.059               | -37   | 215  | 178                      |
| Construction and maintenance              | -€0.010   | €0.013   | €0.003               | -98   | 127  | 29                       |
| Finance and trade and insurance           | -€0.018   | €0.018   | €0.000               | -99   | 98   | -1                       |
| Hotels                                    | €0.000  | €0.000   | €0.000               | 0   | 0  | 0                        |
| Wholesale and retailing and communication | -€0.033   | €0.044   | €0.011               | -355  | 432  | 77                       |
| Housing                                   | €0.000  | €0.000   | €0.000               | 0   | 0  | 0                        |
| Services                                  | -€0.095   | €0.136   | €0.041               | -436  | 1203   | 767                      |
| Private households with employed persons  | -€0.001   | €0.001   | €0.000               | -25   | 29   | 4                        |
| Compensation of employees                 | -€0.093   | €0.108   | €0.014               | 0   | 0  | 0                        |

### 7.10.2 Results: Reduction in tobacco consumption of 1.5 per cent

Table 29: The impact on employment associated with a reduction in consumption of 1.5 per cent

| Industry     | Monetary impact of reduction in tobacco consumption | Monetary impact of increase in expenditure for other goods | Net effect on output | Employment impact of reduction in tobacco expenditure | Employment impact of increase in expenditure for other goods | Net effect on employment |
|--------------|---|--|----------------------|---|--|--------------------------|
| <b>TOTAL</b> | <b>-€0.862</b>                                      | <b>€0.951</b>  | <b>€0.089</b>        | <b>-4,277</b>   | <b>5,952</b>   | <b>1,675</b>             |

| Industry                                  | Monetary impact of reduction in tobacco consumption | Monetary impact of increase in expenditure for other goods | Net effect on output | Employment impact of reduction in tobacco expenditure | Employment impact of increase in expenditure for other goods | Net effect on employment |
|---|---|--|----------------------|---|--|--------------------------|
| Agriculture                               | -€0.037   | €0.025   | -€0.012              | -884  | 598  | -286                     |
| Mining and petroleum                      | -€0.003   | €0.010   | €0.007               | -12   | 51   | 38                       |
| Food industries                           | -€0.018   | €0.100   | €0.082               | -100  | 550  | 449                      |
| Tobacco                                   | -€0.295   | €0.000   | -€0.294              | -1097   | 1  | -1096                    |
| Textile                                   | -€0.003   | €0.032   | €0.029               | -33   | 421  | 387                      |
| Leather and leather products              | -€0.001   | €0.001   | €0.001               | -5  | 11   | 5                        |
| Wood and wood products                    | -€0.005   | €0.027   | €0.022               | -48   | 310  | 261                      |
| Paper products and printing               | -€0.027   | €0.011   | -€0.016              | -103  | 42   | -61                      |
| Chemical products                         | -€0.017   | €0.022   | €0.005               | -26   | 32   | 6                        |
| Oil products                              | €0.000  | €0.000   | €0.000               | 0   | 0  | 0                        |
| Rubber products                           | -€0.005   | €0.007   | €0.003               | -31   | 47   | 16                       |
| Metal and non metal products              | -€0.006   | €0.014   | €0.008               | -25   | 53   | 29                       |
| Basic metal products                      | -€0.006   | €0.012   | €0.006               | -45   | 89   | 44                       |
| Machinery                                 | -€0.008   | €0.014   | €0.006               | -43   | 72   | 30                       |
| Transport devices                         | -€0.037   | €0.086   | €0.049               | -208  | 432  | 224                      |
| Miscellaneous                             | -€0.002   | €0.004   | €0.002               | -42   | 91   | 49                       |
| Electricity                               | -€0.016   | €0.105   | €0.089               | -55   | 322  | 266                      |
| Construction and maintenance              | -€0.016   | €0.020   | €0.005               | -147  | 190  | 44                       |
| Finance and trade and insurance           | -€0.027   | €0.027   | €0.000               | -149  | 147  | -2                       |
| Hotels                                    | €0.000  | €0.000   | €0.000               | 0   | 0  | 0                        |
| Wholesale and retailing and communication | -€0.050   | €0.066   | €0.017               | -533  | 647  | 115                      |
| Housing                                   | €0.000  | €0.000   | €0.000               | 0   | 0  | 0                        |

| Industry                                 | Monetary impact of reduction in tobacco consumption | Monetary impact of increase in expenditure for other goods | Net effect on output | Employment impact of reduction in tobacco expenditure | Employment impact of increase in expenditure for other goods | Net effect on employment |
|--|---|--|----------------------|---|--|--------------------------|
| Services                                 | -€0.143   | €0.204   | €0.062               | -655  | 1805   | 1151                     |
| Private households with employed persons | -€0.001   | €0.001   | €0.000               | -38   | 43   | 6                        |
| Compensation of employees                | -€0.140   | €0.162   | €0.022               | 0   | 0  | 0                        |

7.10.3 Results: Reduction in tobacco consumption of 2.0 per cent

Table 30: The impact on employment associated with a reduction in consumption of 2.0 per cent

| Industry                     | Monetary impact of reduction in tobacco consumption | Monetary impact of increase in expenditure for other goods | Net effect on output | Employment impact of reduction in tobacco expenditure | Employment impact of increase in expenditure for other goods | Net effect on employment |
|------------------------------|---|--|----------------------|---|--|--------------------------|
| <b>TOTAL</b>                 | <b>-€1.149</b>                                      | <b>€1.268</b>  | <b>€0.119</b>        | <b>-5,703</b>   | <b>7,936</b>   | <b>2,234</b>             |
| Agriculture                  | -€0.050   | €0.034   | -€0.016              | -1178   | 797  | -381                     |
| Mining and petroleum         | -€0.004   | €0.013   | €0.009               | -16   | 67   | 51                       |
| Food industries              | -€0.024   | €0.133   | €0.109               | -134  | 733  | 599                      |
| Tobacco                      | -€0.393   | €0.000   | -€0.393              | -1463   | 1  | -1461                    |
| Textile                      | -€0.005   | €0.043   | €0.039               | -45   | 561  | 516                      |
| Leather and leather products | -€0.001   | €0.002   | €0.001               | -7  | 14   | 7                        |
| Wood and wood products       | -€0.007   | €0.036   | €0.029               | -65   | 413  | 348                      |
| Paper products and printing  | -€0.036   | €0.014   | -€0.021              | -137  | 56   | -81                      |
| Chemical products            | -€0.022   | €0.029   | €0.007               | -34   | 42   | 8                        |
| Oil products                 | €0.000  | €0.000   | €0.000               | 0   | 0  | 0                        |
| Rubber products              | -€0.007   | €0.010   | €0.003               | -41   | 62   | 21                       |
| Metal and non metal products | -€0.008   | €0.018   | €0.010               | -33   | 71   | 38                       |
| Basic metal products         | -€0.008   | €0.016   | €0.008               | -60   | 118  | 59                       |
| Machinery                    | -€0.011   | €0.018   | €0.008               | -57   | 97   | 39                       |
| Transport devices            | -€0.049   | €0.114   | €0.065               | -277  | 576  | 299                      |
| Miscellaneous                | -€0.003   | €0.006   | €0.003               | -56   | 121  | 65                       |

| Industry                                  | Monetary impact of reduction in tobacco consumption | Monetary impact of increase in expenditure for other goods | Net effect on output | Employment impact of reduction in tobacco expenditure | Employment impact of increase in expenditure for other goods | Net effect on employment |
|---|---|--|----------------------|---|--|--------------------------|
| Electricity                               | -€0.022   | €0.140   | €0.118               | -74   | 429  | 355                      |
| Construction and maintenance              | -€0.021   | €0.027   | €0.006               | -195  | 254  | 59                       |
| Finance and trade and insurance           | -€0.036   | €0.036   | €0.000               | -198  | 196  | -2                       |
| Hotels                                    | €0.000  | €0.000   | €0.000               | 0   | 0  | 0                        |
| Wholesale and retailing and communication | -€0.066   | €0.089   | €0.022               | -710  | 863  | 153                      |
| Housing                                   | €0.000  | €0.000   | €0.000               | 0   | 0  | 0                        |
| Services                                  | -€0.190   | €0.273   | €0.082               | -873  | 2407   | 1534                     |
| Private households with employed persons  | -€0.001   | €0.001   | €0.000               | -50   | 58   | 8                        |
| Compensation of employees                 | -€0.187   | €0.216   | €0.029               | 0   | 0  | 0                        |

## 7.11 Appendix 11: Glossary

### **Herbal Cigarettes / Traditional Smoking Cessation Aids**

Herbal cigarettes are also known as tobacco-free or nicotine-free cigarettes. Data on herbal cigarettes and traditional smoking cessation aids from Euromonitor in this study include: all herbal smoking cessation aids. Herbal cigarettes if positioned as a smoking cessation aid are also included. Nicotine-based smoking cessation aids are excluded. Examples: Smoke Away, HoneyRose.

### **Illicit trade**

“Any practice, or conduct prohibited by law and which relates to production, shipment, receipt, possession, distribution, sale or purchase including any practice or conduct intended to facilitate such activity”.<sup>271</sup> Among the most frequent Illicit trade activities are smuggling, counterfeiting, cheap whites or illicit white, unbranded tobacco, bootlegging, and illegal manufacturing.<sup>272</sup>

### **Make-Your-Own (MYO) cigarettes**

MYO cigarettes are made from loose tobacco, but come with pre-made filter tubes. They also come with a device for pressing tobacco into the tubes and produce the cigarettes.

### **Non-combustible products**

Non-combustible products encompass a) smokeless tobacco and b) nicotine-related products. These are tobacco and nicotine products which do not involve a process of burning (combustion).

### **Nicotine-related products**

This encompasses all nicotine products which do not involve combustion when consumed, for example electronic cigarettes, nicotine sweets or nicotine drinks.

### **Roll Your Own Tobacco (RYO)**

RYO is loose tobacco usually sold in pouches and used to make hand rolled cigarettes. RYO tobacco data from Euromonitor used in this study is defined as “tobacco sold in packaged format for use in RYO cigarettes”.

### **Smokeless Tobacco**

Euromonitor specifies that “smokeless tobacco is the general term used to describe tobacco products that are utilised without combustion. Smokeless tobacco is used either in the mouth or in the nose.” As such, there are three broad subcategories within smokeless tobacco: a) oral tobacco b) chewing tobacco and c) nasal tobacco. Oral and nasal tobacco are combined by Euromonitor as the category ‘snuff’. This is because “snuff was originally a nasal product but today is more commonly used in the mouth (oral snuff, moist snuff) in a manner similar to that of chewing tobacco.”

### **Snuff**

According to Euromonitor, “snuff is divided into Moist, Dry and Hard snuff. Within snuff, processing methods vary - US-style moist snuff is distinguished from Swedish-style snuff by its production method: US-style moist snuff is fermented as opposed to Swedish-style snuff which is pasteurised (heat treated).”

---

<sup>271</sup> Article 1 of the WHO Framework Convention on Tobacco Control.

<sup>272</sup> Transcrime (Mimeo): “Crime proofing the policy option for the revision of the Tobacco Products Directive. Proofing the policy options under consideration for the revision of EU Directive 2001/37/EC against the risks of unintended criminal opportunities. Milan.

**Snus**

Is a traditional smokeless tobacco made up of air-cured tobacco, salt and water and has been consumed since the mid-1800s. It is placed in the mouth, cheek or lip and sucked (dipped). Snus is banned in the European Union, with the exception of Sweden.



7.12 Appendix 12: Example of online retailers which might target EU customers in different Member States.

| Retailer  | Features   |
|---|--|
| <a href="http://www.tobaccoonline.co.uk/">http://www.tobaccoonline.co.uk/</a> | <p>Pages in German, Portuguese, Italian, French and Spanish are available on the site.</p> <p>Site advertises “cheap cigarettes made in EU and USA”.</p> <p>The company is incorporated in Switzerland through contact numbers are UK landlines</p> <p>The site offers the possibility to negotiate “wholesale” deals</p> <p>A special section of the site offers “cigarettes and tobacco from Spain” destined for UK, Ireland, France, Spain and Italy.</p> |
| <a href="http://www.cigs-direct.com/">http://www.cigs-direct.com/</a>         | <p>Statement on the site saying: “Buy cheap duty free cigarettes for UK and Ireland at discount prices”</p> <p>Possibility to use euro and sterling for payment on this site.</p> <p>While products are shipped from outside the EU, the parent company Rostov Holdings Limited is registered with The Registrar of Companies for England and Wales.</p>   |
| <a href="http://www.saveonfags.com/">http://www.saveonfags.com/</a>           | <p>Site states that deliveries are shipped from Europe and prices are displayed in Euro</p>  |
| <a href="http://buy.cigs-sale.com/">http://buy.cigs-sale.com/</a>             | <p>British, German, French and Spanish flags displayed on the website.</p> <p>The company is incorporated in the Ukraine.</p>  |

The Table below is a compilation of 21 websites selling cigarettes as well as the way they each deal with taxation. The list shows that most websites follow a clear strategy of emphasising that it is legal to purchase online for personal consumption, and that taxes need only be paid in the country the companies are sending from, and that most websites offer a refund if the customer does need to pay duty tax upon receiving the goods.

**Table 31: List of 21 Websites Selling online Tobacco Products and How they Deal with Taxation**

| Website   | Comments on taxation   |
|---|--|
| <a href="http://www.cigs-direct.com/">http://www.cigs-direct.com/</a> | <p>The reason for low prices is that the website ‘doesn’t pay for branding, marketing, advertising or a costly sales force’, and purchases are legal ‘as long as the purchase is made in accordance with international postal regulations and standards’. The company states that ‘to guarantee delivery, we split orders into separate parcels...because [a single parcel] would be subject to duty since the width and value would not fall within the prescribed international parameters’. If asked to pay duty tax upon arrival, the consumer can ‘pay duty tax and collect the parcel’ or ‘reject the parcel and return to sender’</p>   |
| <a href="http://www.saveonfags.com/">http://www.saveonfags.com/</a>   | <p>The cigarettes sold by the company are for ‘personal use only...customers...must be aware of the laws in force in their country and the sanctions they may incur if their intention is to resell “duty free” cigarettes’. The company ‘cannot guarantee that no tax will be paid worldwide because some countries may occasionally apply the international postal regulations and standards. In the European Union...parcels containing 200 cigarettes are exempted from taxes’.</p>  |
| <a href="http://buy.cigs-sale.com/">http://buy.cigs-sale.com/</a>     | <p>The company states that it receives ‘directly from the manufacturer’, so ‘we can supply the best cigarettes at the lowest prices’. Buying cigarettes online and having them shipped is ‘legal within the conditions of the international postal regulations and standards, which we fully comply by’. The prices are similar to duty free prices because ‘we sell them close to production price...these products are duty paid’. Further, ‘as long as only one carton of cigarettes (200 cigarettes) is imported, you are not subjected to duty tax. In order to ensure that no duty taxes are applied, we ship out each carton separately to our customers’ and ‘it is very unlikely...that you will be subjected to duty tax’.</p> |
| <a href="http://euro.cigoutlet.net/">http://euro.cigoutlet.net/</a>   | <p>The website speaks of new prices for Europe, also because ‘European customers are often imposed to pay taxes by Customs authorities when the cigarettes are received. When it happens customers prefer to refuse the parcel and it is sent back to us. In such cases we guarantee a refund and for all this our company incurs losses’. The company specifies that ‘we don’t report tax or customer information to any government agency or</p>   |

| Website   | Comments on taxation   |
|---|--|
|   | other entity’.   |
| <a href="http://www.tobaccoonline.co.uk/">http://www.tobaccoonline.co.uk/</a>           | Cigarettes sold are referred to as ‘duty free stock’, with any delivery problems ‘rare occasions.’   |
| <a href="http://europe.smokecafe.com/info">http://europe.smokecafe.com/info</a>         | The company does not deliver to Hungary (along with other non-EU countries) ‘due to high delivery failure rates’. Large orders are shipped in separate parcels, because if not, ‘the parcel would be subjected to duty as far as its width and value would not suit the allowed international parameters’. Further, ‘it is the responsibility of the Buyer to ascertain and comply with the laws relating to the purchase and use of any tobacco goods’ and ‘we cannot guarantee that no tax will be paid Europe and worldwide because some countries may occasionally apply the international postal regulations and standards’.  |
| <a href="http://www.eu-tobacco.com/">http://www.eu-tobacco.com/</a>                     | Website states that ‘We DO NOT report any information about our customers to any authorities. You can feel 100% safe ordering from our store! ‘  |
| <a href="http://www.cigarettes-seller.com/">http://www.cigarettes-seller.com/</a>       | Website states that it sells ‘duty free’ items, which are ‘more affordable than retail’. Because ‘tax free sales mean that you do not pay state tax, federal or excise tax’, items are ‘a fraction of the price you would pay retail’. It specifies that ‘it is important to know the customs regulations in your country, as there may be additional customs taxes’. When a customer orders more than one item, ‘we send them in multiple packages. This is in order not to incur duty taxes which are charged on shipments that exceed international parameters.’ If a customer is charged duty tax when picking up an order, he/she can ‘pay the tax and they will release your order’ or ‘don’t take the delivery. We will send a refund for the total cost when it returns to our warehouse.’ |
| <a href="http://www.eurocheapcigarettes.com/">http://www.eurocheapcigarettes.com/</a>   | Website described as a ‘duty free shop’ where ‘you don’t have to pay any tax for cigarettes’. The company does not send a single parcel containing all ordered cartons ‘because it would be subject to duty since the width and value would not fall within the prescribed international parameters’. Buying from the website is specified as being ‘legal as long as you are over 21 years old and are buying the tobacco products for personal consumption and not for resale. Buying cigarettes from our online store for resale could cause problems with the law, because the taxes of your country were not paid’.   |
| <a href="http://www.wholesale-cigarettes.com/">http://www.wholesale-cigarettes.com/</a> | This website has the same FAQs as  |

| Website  | Comments on taxation   |
|--|--|
|  | <p><a href="http://www.cigarettes-seller.com/">http://www.cigarettes-seller.com/</a>, and thus the same specifications about tax.</p>  |
| <p><a href="http://www.buy-cheap-cigarettes-online.com/">http://www.buy-cheap-cigarettes-online.com/</a></p>         | <p>This website has the same FAQs as <a href="http://www.cigarettes-seller.com/">http://www.cigarettes-seller.com/</a>, and thus the same specifications about tax.</p>  |
| <p><a href="http://www.taxfreenativediscountcigarettes.com/">http://www.taxfreenativediscountcigarettes.com/</a></p> | <p>This website has the same FAQs as <a href="http://www.cigarettes-seller.com/">http://www.cigarettes-seller.com/</a>, and thus the same specifications about tax.</p>  |
| <p><a href="http://www.e-tobaccos.com/">http://www.e-tobaccos.com/</a></p>   | <p>Website states that 'all of our cigarettes and tobacco products are taxed in an EU country and carry taxation stickers to prove this. because the goods are being shipped to another EU member state, a single point of taxation applies'. The FAQs say that 'we are registered as a trading company and pay all our taxes...we are a full and legal business that you can trust'.</p>  |
| <p><a href="http://www.lowpricecigarettes.co.uk/">http://www.lowpricecigarettes.co.uk/</a></p>                       | <p>The 'legal' part of the website states that 'Low Price Cigarettes was formed to overcome excessive tobacco taxation in some European Union countries...by taking advantage of the European Common Market. In the same way in which you can buy a U.K. specification car cheaper in Holland...you can avoid excessive taxation by buying your cigarettes through Low Price Cigarettes'. It further states that 'all of our cigarettes and tobacco products are taxed in an EU country and carry taxation stickers to prove this...a single point of taxation applies. The website states that 'there may be occasions when duty must be paid in your country'.</p> |
| <p><a href="http://www.buycigarette-online.com/">http://www.buycigarette-online.com/</a></p>                         | <p>Website states that it carries 'only tax-free items...it is wise, however, to note the customs taxes in your country. It states that 'we adhere to all laws'. Further, 'should [being charged a duty tax] occur, however, you can either pay it and accept the order; or refuse to pay and have the shipment sent back'. The company ships 'orders of multiple items in several packages. This is to avoid duty taxes which may be added to large value / size packages'.</p>   |
| <p><a href="http://www.smoketobacco.net/">http://www.smoketobacco.net/</a></p>                                       | <p>The website does not ship multiple orders in one single parcel because 'it would be subject to duty since the width and value would not fall under the prescribed international parameters'. However, 'we cannot guarantee that no tax will be paid worldwide because some countries may occasionally apply the international postal regulations and standards'.</p>  |
| <p><a href="http://www.smokingbrands4sale.com/">http://www.smokingbrands4sale.com/</a></p>                           | <p>This website has the same FAQs as</p>   |

| Website  | Comments on taxation   |
|--|--|
|  | <p><a href="http://www.cigarettes-seller.com/">http://www.cigarettes-seller.com/</a>, and thus the same specifications about tax.</p>  |
| <p><a href="http://euro.azcigs.com">http://euro.azcigs.com</a></p>                                 | <p>Website states that 'any items that are confiscated by the customs are at your own risk and we are not liable to make any form of refund if items are seized. If however the items are returned to us we will refund you in full. We do not deliver to United Kingdom, Ireland, Germany, Italy and France'.</p>   |
| <p><a href="http://www.1discountcigaretteshop.com/">http://www.1discountcigaretteshop.com/</a></p> | <p>Website states that it is 'legal to buy cigarettes...via international mail...as long as the purchase is made in accordance with international postal regulations and standards.' If a customer need pay duty tax upon receiving an order, he/she can 'pay the duty tax and collect the parcel. The total amount will still be much lower than the regular retail price' or 'reject the parcel, which will be returned to us...you will be fully refunded for the items returned'. Further, 'duty tax is not charged for buying and importing up to 200 cigarettes / 21 days (for Europe)...DutyFreeDepot shops each carton separately to its consumers'.</p> |
| <p><a href="http://www.e-cheapcigarettes.com/">http://www.e-cheapcigarettes.com/</a></p>           | <p>It is 'against the law everywhere [to resell cigarettes bought from the website]. The cheap products we are selling [sic] are for personal use only'. With regards to a maximum order, there is none, but 'please be aware of the laws in your country and respect them'. Further, 'we do NOT report your information to ANY authority'.</p>  |
| <p><a href="http://www.discountcigarettesbox.com/">http://www.discountcigarettesbox.com/</a></p>   | <p>According to the website, it is 'left to the discretion of customers who must be aware of the laws in force in their country and the sanctions they may incur if their intention is to resell "duty free" cigarettes...in order to determine the applicable limits on purchases or taxing responsibilities, if any, imposed by your particular state, the consumer may want to contact their state authorities'. The company ships multiple orders in separate packages. In the event of being charged duty upon receiving parcel, 'you have a choice to pay the duty or refuse the package'.</p>   |