

# Effects of consumer trends and fiscal policies in the FMCG industry

Analysis of the FMCG industry transformation driven by changing consumer behavior and governmental fiscal policies on unhealthy products

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# 1

The FMCG industry is in  
the process of change

The FMCG (fast moving consumer goods) industry is currently in a process of profound change. Several prevailing trends can be seen affecting society, industry, and government.

For society, the desire for a healthier and more sustainable lifestyle is shaping new demand patterns. Conventional consumer goods that are generally associated as being harmful for one’s health (henceforth: unhealthy products) are being especially impacted. Unhealthy products, such as smoking products, sugar, and alcohol, are known to bring about certain diseases such as obesity, diabetes, and cancer. In hope of reducing their risk of getting one of these diseases, consumers dispense of – or at least reduce – their consumption of unhealthy products.

New demand patterns are not the only changes affecting the FMCG industry. There are also changes occurring on the supply side. Even though innovation in the FMCG industry usually is very costly, new products are being offered on a regular basis. Many of these innovative products bear a reduced risk to a consumer’s health, at least compared to the conventional, unhealthy products. There is a wide range of products that can be seen as alternatives to the conventional products. Some are shown to be healthier

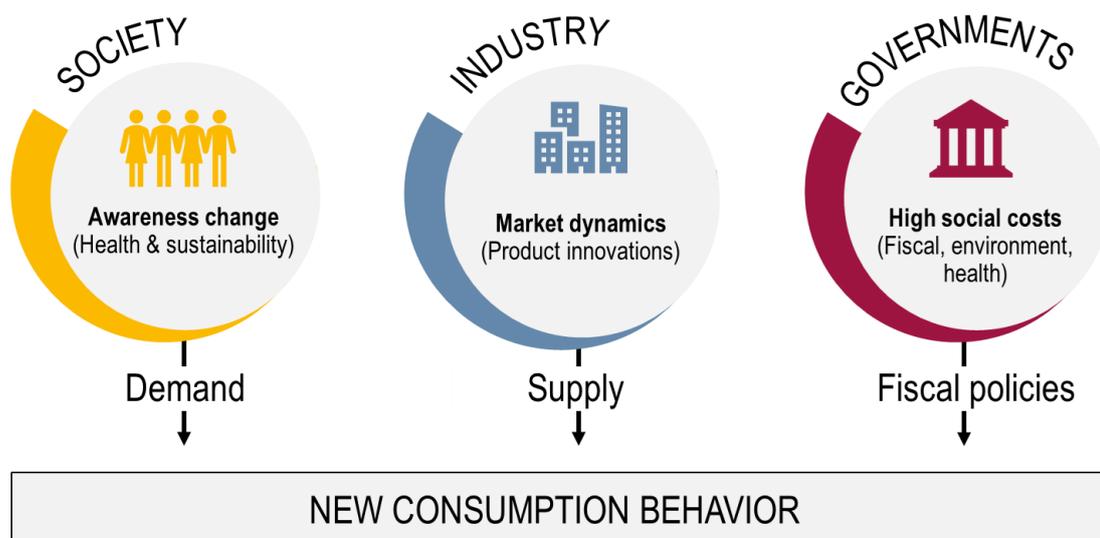
than, while others only bear a lower health risk. For simplicity, this paper refers to all these products as "substitute products."

Governments are also cognizant of the changing nature of the FMCG industry and the need for a new regulatory environment. They are showing an increased level of recognition by implementing differentiated fiscal policies (i.e., product specific taxes based on the risk of that product to health and/or environment). These policies have the aim to trigger new consumption patterns and increase innovation for alternative, risk-reduced products.

It is imperative for companies to position themselves in order to recognize future market developments and to be able to adjust their strategies accordingly. Therefore, we have developed a comprehensive model that holistically describes the transformation occurring in the FMCG industry (see figure 1). Our model captures the three main trends affecting market participants: (1) societal (reflecting the demand-side), (2) industrial (reflecting the supply-side) and (3) governmental (reflecting the regulatory framework). Understanding these three prevailing trends is crucial for all market participants to shape their future.

Figure 1: New consumption behavior driven by market participants

### Transformation of the FMCG industry



In this paper, we determine the effect changing consumption behavior is having in the FMCG industry, driven by the main market participants: society, industry and government. We examine how social dynamics, price, and market growth play an influential role in determining new consumption behavior. Furthermore, will illustrate the effects influencing consumption behavior in the alcoholic beverage, smoking and sugar markets in three case studies.

### 1.1 Increasing awareness of health and sustainability influences consumer behavior (Society)

Society is experiencing a shift in personal health awareness, and never before has there been more detailed health information available to the public.<sup>1</sup> In addition, demographic and socioeconomic developments, including aging populations and higher educational standards, and changes in societal and environmental awareness are affecting society and its consumption behavior. An example for that is the increased appreciation of environmental sustainability and organic foods.<sup>2</sup>

Ultimately, living a disability-free life is everyone's goal. Health studies show that smoking, being obese and consuming unhealthy quantities of alcohol are the main behavioral factors that increase the likelihood of contracting a disability.<sup>3</sup> Studies also show that favorable behavioral changes, such as quitting smoking, even late in life, increase longevity.<sup>4</sup> Similarly, evidence suggests that reducing the time a person is obese is associated with improved health.<sup>5</sup> These developments are increasingly reinforced by the awareness for product ingredients. An increase in awareness for certain products or values can be triggered by either society itself (e.g., developing trends towards healthier lifestyles) or by governmental regulatory frameworks (e.g., mandatory display of risk information in advertising campaigns for unhealthy products) that increase the level of consumption of substitute products. Overall, based on this rising personal health awareness in society, an increasing number of people can be expected to move away from unhealthy consumption patterns in the future.

### 1.2 Product innovations are changing the market environment (Industry)

As for companies, new product introductions have a strong impact on changing consumption behavior. The FMCG industry is already experiencing a shift in consumer preferences. For example, Fortune Business Insights expects the global market size for sugar substitutes to continually increase by a compound annual growth rate (CAGR) of 6.3% in the upcoming years. This growth rate for substitute products leads to an increasing market share for these products in the long run, while the market share of conventional sugar products will decrease. The total market size of substitute products is expected to reach USD 10.27 billion by the end of 2026.<sup>6</sup> Subsequently, substitute products push away sugar products and the industry integrates a new variety of products in their portfolio. Overall, increasing levels of innovation among FMCG companies is leading towards a shift towards substitute products. Yet, since innovation and the introduction of new products is associated with high costs and a potential risk of failure, not all companies are participating in the process of change.

### 1.3 High social costs as incentive to influence consumption behavior (Government)

Governments are driven by increasing so called social costs. These costs derive (among others) from increasing spendings on public health, and the need to act in an environmentally sustainable manner.<sup>7</sup> As introduced in section 1.1., the rise of NCDs (noncommunicable diseases) has been driven by primarily four major risk factors: smoking, physical inactivity, the harmful use of alcohol and unhealthy diets.<sup>8</sup> This demonstrates the direct impact of unhealthy consumption on governmental health costs. Specifically, in 2015, consumption of unhealthy products like sugar, salt and fat cost the German health care system € 16.8 bn.<sup>9</sup> Governments intend to foster a transition to more environmentally sustainable and healthier consumption. This aim is in line with the changes in social values of the consumers (e.g., increased appreciation toward environmental sustainability and sustainable consumption). Increased measures to foster

market transformation will probably also lead to higher fiscal pressure in the future.

To counteract increasing fiscal pressure, European governments are seeking new ways to balance their budgets. This can be done by reducing costs (e.g., reduced healthcare spending) and increasing earnings (e.g., increased tax revenue).<sup>10</sup>

A proven way for governments to increase tax revenue and steer consumption is to impose product-specific taxes.<sup>11</sup> The target of these taxes is usually to increase retail prices and thereby reduce the demand for the most unhealthy products. Health taxes, which are a vehicle to increase the price of and lower the demand for unhealthy products such as smoking products, alcohol, and sugar-sweetened beverages, are currently under consideration. These taxes act in response to increasing social costs, from both a fiscal and health perspective, and were the brainchild of the "UN Committee of Experts on International Cooperation in Tax Matters." In addition, these new taxes contribute towards the sustainable development goals set out in SDG 3, "Ensure healthy lives and promote well-being for all at all ages," as well as in other SDGs.<sup>12</sup> Differentiated taxation is a way to regulate the consumption of products according to their level of harmfulness to the consumer. It is based on the economic concept that taxes (and therefore also prices) should reflect how harmful a product is to consumers' health and environment. The aim of differentiated taxation is to make harmful products less attractive and to increase the consumption of substitute products.<sup>12</sup> By imposing taxes on unhealthy products and thereby raising prices, harmful products are made less attractive and consumption of these products will reduce. This is, naturally, assuming that these are "normal goods," whereby demand decreases when prices increase.<sup>13</sup> Consumption of substitute products is then expected to increase.

#### 1.4 Interdependencies: Society, Industry, Government and their interdependencies among each other

No market participant operates in vacuum. The three FMCG market participants, society, industry, and government, are closely intertwined, experiencing

considerable interdependency and each demonstrating influence on consumption. Societal changes in health awareness are impacting consumption behavior, while pressure on authorities is increasing, leading to governmental pressure for topics such as environmental sustainability. Changes in regulatory policy (e.g., taxes) often foster product innovation in industry and provide a legal basis for novelty products. New product launches not only promote more innovation but also create entirely new market segments and demand patterns. Even though product innovations are not directly dependent on governmental intervention, changes in the regulatory framework can provide significant incentive and support for new products.

# 2

Analyzing unhealthy  
product consumption to  
forecast future  
developments in the  
FMCG industry

Consumption behavior is changing due to the aggregated trends arising from society, industry, and government. To analyze how consumption behavior will develop due to these aggregated trends, we examine three core factors for change.

## 2.1 Three main input factors influencing consumption behavior

- > Social factor: Explains the impact of changes arising from socioeconomic and demographic trends. It reflects changes in population variables such as age, gender, education, and income and their effect on the consumption of unhealthy products.

- > Price factor: Considers that a price change for one product affects the demand for that product and other, related products (e.g., substitutes).
- > Market factor: Reflects current and future market developments (e.g., innovation) that influence market environments and switching behavior (to substitute products).

Figure 2: Input factors influencing consumption behavior

### Modelling changing consumption behavior



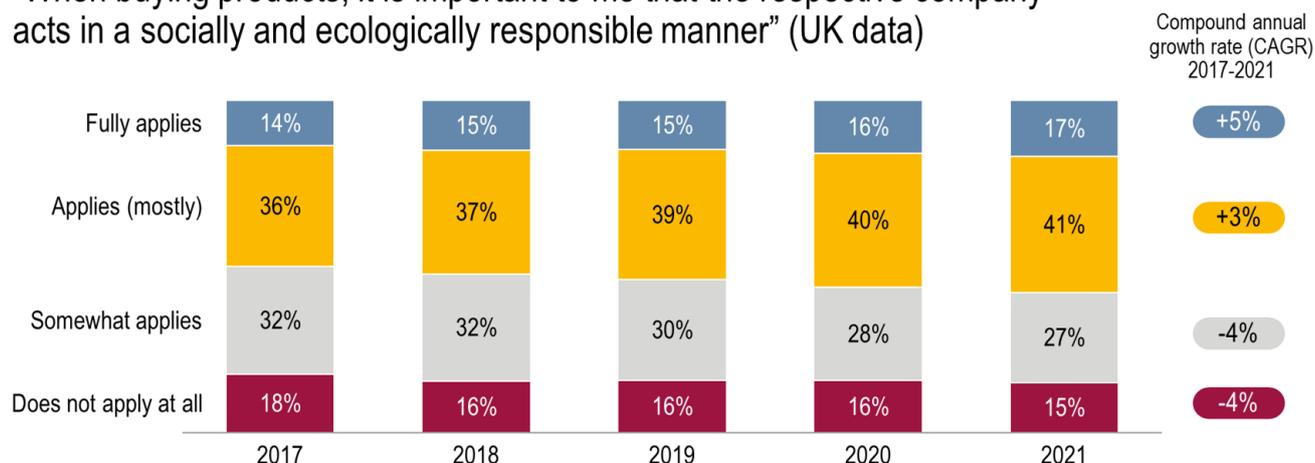
#### Social factor

The social factor accounts for changes in variables such as populations age, gender, educational level, and level of income.<sup>14</sup> Changes in these variables determine how a population values certain products and how the demand for these products develops. As seen in figure 3, consumers increasingly value companies that act in a socially and ecologically responsible manner. In this example, an increasing level of education in society is mainly driving society's changing awareness of sustainability and the environment.<sup>15</sup> Changes in social norms and values have a direct influence on individual consumption.

These changes in preference must be considered when forecasting future consumption behavior. Awareness of the socioeconomic and demographic developments that are influencing consumption decisions and how they will change over time is vital for companies. Having this awareness will enable companies to better understand the long-term viability of their business models. To determine the effect of the social factor, data on the variables reflecting population values and their changes are used to forecast the change in demand from year-to-year.

Figure 3: Survey on social and ecological responsibility as a purchase criterion

“When buying products, it is important to me that the respective company acts in a socially and ecologically responsible manner” (UK data)



Source: VuMa, 2021

### Price factor

The price factor reflects the effect price changes have on demand. It contains the impact of a price change of one product on the demand for that product and other, related products (substitutes or complements). Thus, the price factor considers downward and upward substitution across product categories. To map the influence of price changes on demand responses, own- and cross-price elasticities must be generated for each product category. When analyzing the future development of consumption behavior for different product categories (e.g., combustible smoking products and non-combustible alternatives) an elasticity matrix must be developed. For example, if a market consists of five product categories, a 5x5 elasticity matrix is necessary to fully reflect price induced demand changes (see figure 4). Figure 4 shows how the price factor can be modelled: the percentage demand change of each product category is calculated by multiplying the price changes of this category and all other product categories (price vector) with the respective elasticities from the elasticity matrix. Specifically, an elasticity matrix consists of own- and cross-price elasticities. The own-price elasticity displays the percentage the demand for a product changes when the price

of this product increases by 1 percent (i.e., how much the demand for combustible smoking products changes when its own price increases by 1 percent). The cross-price elasticity displays the percentage the demand for a product changes when the price of another product increases by 1 percent (e.g., how much the demand for combustible products changes when the price for non-combustible alternatives increases by 1 percent).

The overall market elasticity shows how much the demand changes when prices for all product categories increase by 1%. The overall market elasticity is calculated by taking the market shares for each product category and multiplying it by the respective price elasticities, leading to a weighted average price elasticity for one market.<sup>16</sup> By taking the overall market elasticity, all relevant products in an industry are reflected in the calculation. For example, the overall market elasticity for the nicotine market generally lies between -0.25 and -0.5. This means if prices of all smoking products (combustible and non-combustible alternatives) increased by 1%, the total demand for cigarette (equivalents) would decrease by 0.25% to 0.5%.<sup>17</sup>

Figure 4: Price factor

## Elements of the price factor

### Elasticity matrix

Quantity	Product 1	Product 2	Product 3	Product 4	Product 5
Price					
Product 1	$\epsilon_{P1,P1}$	$\epsilon_{P1,P2}$	$\epsilon_{P1,P3}$	$\epsilon_{P1,P4}$	$\epsilon_{P1,P5}$
Product 2	$\epsilon_{P2,P1}$	$\epsilon_{P2,P2}$	$\epsilon_{P2,P3}$	$\epsilon_{P2,P4}$	$\epsilon_{P2,P5}$
Product 3	$\epsilon_{P3,P1}$	$\epsilon_{P3,P2}$	$\epsilon_{P3,P3}$	$\epsilon_{P3,P4}$	$\epsilon_{P3,P5}$
Product 4	$\epsilon_{P4,P1}$	$\epsilon_{P4,P2}$	$\epsilon_{P4,P3}$	$\epsilon_{P4,P4}$	$\epsilon_{P4,P5}$
Product 5	$\epsilon_{P5,P1}$	$\epsilon_{P5,P2}$	$\epsilon_{P5,P3}$	$\epsilon_{P5,P4}$	$\epsilon_{P5,P5}$

### Price vector

$$\vec{p}_{\Delta t, i} = \begin{pmatrix} \frac{p_{t,P1} - p_{t-1,P1}}{p_{t-1,P1}} \\ \frac{p_{t,P2} - p_{t-1,P2}}{p_{t-1,P2}} \\ \frac{p_{t,P3} - p_{t-1,P3}}{p_{t-1,P3}} \\ \frac{p_{t,P4} - p_{t-1,P4}}{p_{t-1,P4}} \\ \frac{p_{t,P5} - p_{t-1,P5}}{p_{t-1,P5}} \end{pmatrix}$$

- Own-price elasticity
- Cross-price elasticity

- P** = Product
- E** = Price elasticity matrix
- $P_{t,i}$  = Price at time t of product i
- $P_{\Delta t,i}$  = Price changes at time t of product i

- With t** = Year 1, Year 2, ...
- And i** = P1, P2, P3, P4, P5

## Market factor

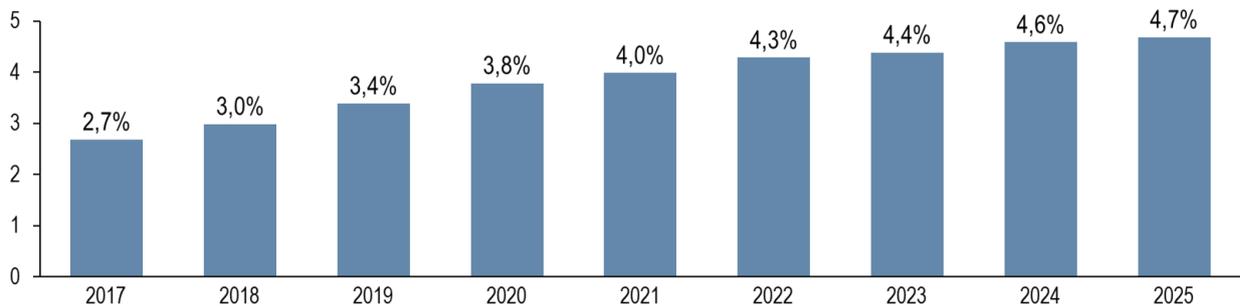
The market factor accounts for the development of new products or a completely new product category. In particular, it reflects the market growth of innovative products in relation to the growth of already existing product – independent of their price. While the price factor is driven by changes in consumer demand, the market factor is mainly driven by industry suppliers and producers. The market factor is calculated as the

percentage change in the predicted growth of a product from one year to the next. The example in figure 5 depicts the market growth of e-cigarettes, a substitute product to combustible cigarettes. Although positive market growth can be seen, the growth rate declines over the years. In this particular example, the market factor is positive, implying that the market for new products (e-cigarettes) is increasing.

Figure 5: Market factor

## Market share e-cigarettes (EU)

Market share



Source: 6wresearch, 2021

The importance of the market factor is also seen in the meat market: The demand for meat is gradually decreasing in Germany, and German authorities are in the process of increasing regulation on the sale of

meat by introducing a meat tax.<sup>18</sup> Given this outlook, German meat companies have limited incentive to innovate. Meat substitute products, on the other hand, are becoming more well-known and accepted by

society.<sup>19</sup> Specifically, the global market share for meat substitutes is expected to grow from its current 0.5% to 30% by 2030.<sup>20</sup>

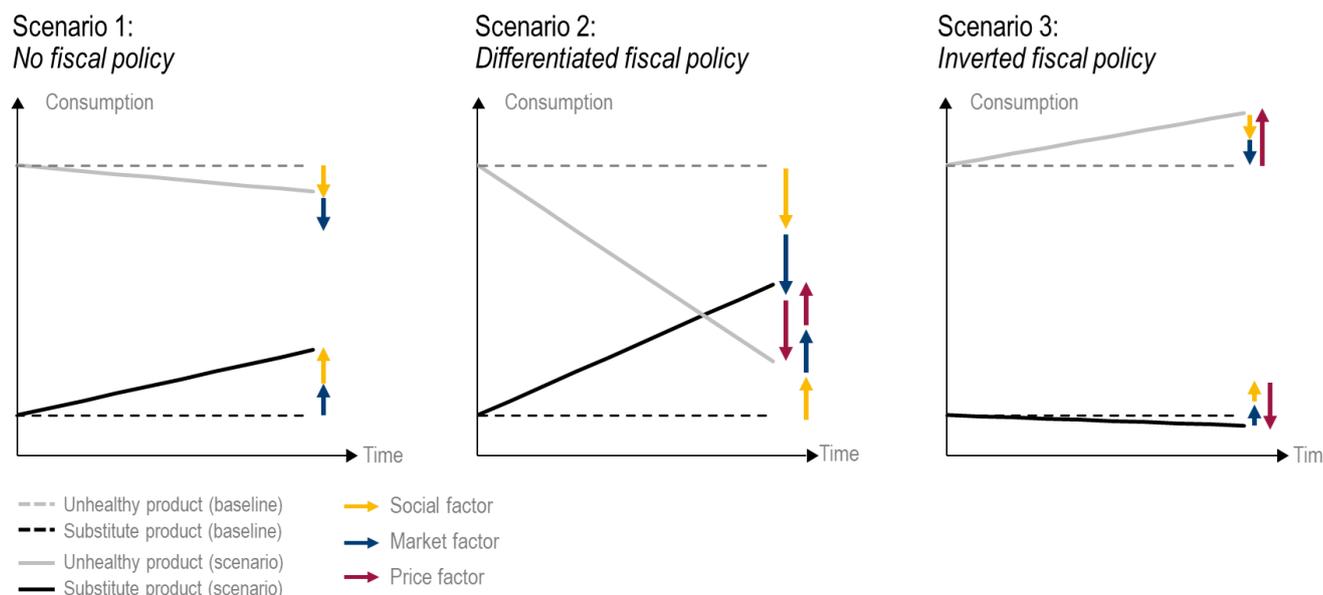
Usually the market factor has a positive effect on the quantities of new products. Given that consumers are presumably going to switch from one product to another, they are not likely to forego consumption but rather shift their preferences—the total market volume is not expected to change due to the market factor. Companies active in the FMCG industry should be aware of the potential market growth of new products and should consider investing into growing markets to be prepared for and ready to respond to upcoming demand developments.

## 2.2 Development of different governmental fiscal policy scenarios

The effects arising from aforementioned the social, price and market factors are the main causes for the ongoing change in consumption behavior, and these factors are critical in determining how consumer behavior will develop. Depending on how a fiscal policy is designed, the impact on consumption behavior can greatly vary. To illustrate these varying results, three hypothetical policy scenarios were designed, each demonstrating how consumption of unhealthy and substitute products could be affected.

Figure 6: Scenario analysis: Fiscal policies and their effect on consumption

### Scenario analysis: Implementation of fiscal policies



Under **scenario 1**, the government does not intervene. In this case, it does not imply that taxes on the different products are exactly the same. It means that no differentiated, risk-based taxation is applied. The government introduces no new taxes, and there are no taxed-induced price increases. Thus, the *price factor* does not affect consumption. However, consumption is affected by the *social* and *market factor*. Consumption for unhealthy products would decrease slightly, given increasing health awareness and corresponding market dynamics.

In some industries (e.g., alcohol) consumption changes are comparably stable. The *social* and *market factor* have limited influence—so no significant consumption change is expected. While in other industries (e.g., sugar), we expect consumption behavior to change quite a bit due to decreasing consumption of sugar products. For substitute products, consumption is expected to increase. However, given there is no regulatory “push” to stimulate demand for these products, the increase in demand is only moderate.

Under **scenario 2**, the government applies a differentiated regulation. Regulators increase taxes on unhealthy products (e.g., alcoholic beverages, combustible smoking products, sugar containing products) but do not on respective substitute products. Due to this differentiated regulation, a large tax differential is created. Presuming that tax changes are reflected accordingly in price changes, the amount of the unhealthy products consumed decreases due to the *price factor*. The *social* and *market factor* also impact demand as they did in scenario 1. Differentiated regulation is especially suitable to industries with products that can be specifically measured in their level of harmfulness to the consumer. For example, differentiated tax rates can be applied to sugar-sweetened products depending on their relative sugar content.

Under **scenario 3**, the government increases taxes but does not follow a risk-reduced policy. Substitute products, such as beverages with low alcohol content, non-combustible smoking alternatives and sugar-reduced food, are regulated more strictly than before. The tax increase on substitute products leads to tax-induced price increases and results in a relative price advantage for unhealthy products. Thus, the *price factor* leads to a positive consumption change for unhealthy products due to consumers switching from substitute products back to unhealthy products.

Under this scenario, the *social* and the *market factor*, which trend away from unhealthy product consumption, are likely offset by the price effect. It is even possible that the price effect outweighs the *social* and the *market factor*. Thus, total consumption of unhealthy products could increase, and consumption of substitute products is expected to decrease or remain stable, depending on the size of the social, price and market factor. Given the overall incentive for governments to increase consumption of substitute products (i.e., due to high social costs), the outlined regulation in this scenario would not be recommended.

# 3

Expected impact of new  
consumption behavior on  
several industries –

Companies must adjust  
their strategies accordingly

In the following, we illustrate how tax changes affect markets in three use cases: the market for (1) alcoholic beverages, (2) smoking products, and (3) sugar. We assume a hypothetical tax change to illustrate the mechanism at play. The assumed tax changes follow a differentiated risk reduction approach, with each product's tax levels depending on its respective health risk. At this point of the analysis, it is important, contrary to the description in the introduction, to accurately differentiate among the wide range of available substitute products within one industry. Specifically, we assume the government implements taxes proportional to a product's health risk, resulting in unhealthier products being taxed higher than their less harmful substitutes. For each use case, we will illustrate how fiscal policies affect consumption behavior through the social, market, and price factors.

### 3.1 Total alcohol consumption decreases, which is driven by both the increased taxes and a higher health awareness in the population

Alcohol is a toxic substance with substantial private and public costs. To discourage consumption, most countries levy a corrective tax on beverages that contain alcohol. The EU defines minimum tax rates for different types of alcoholic beverages. The minimum rate for beer is EUR 0.748 per hectoliter per degree plato<sup>i</sup> and EUR 550 per hectoliter of pure alcohol in spirits.<sup>21</sup> No minimum tax rate is defined for wine. Since the EU member states are obliged to levy taxes at least as high as the defined minimum levels, these differentials translate into national law. Germany, for example, taxes alcohol in spirits heavily, EUR 1.303 per hectoliter of pure alcohol. Beer is only taxed EUR 0.787 per hectoliter per degree plato,<sup>ii</sup> and non-sparkling wine is not taxed.<sup>22,23</sup> As a result, a price differential between products has arisen. However, alcohol consumption is detrimental to health regardless of which beverage the pure alcohol comes from and causes social and health costs. Therefore, alcohol taxation in Germany and the EU is currently not risk oriented.

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<sup>i</sup> The plato gravity scale measure the concentration of sugars and soluble material in a beer and is an indicator of the potential alcoholic strength (Oxford University Press (2013)).

A differential approach to alcohol taxation is found in Australia.<sup>24</sup> In 2010, a board of tax experts recommended a risk-oriented taxation of alcoholic beverages after reviewing the Australian tax system. Under this recommended tax system, a universal tax per amount of pure alcohol is levied, irrespective of the product type.<sup>25</sup> Given the current developments of rising fiscal pressure and the high social costs of alcohol consumption outlined in chapter 1, this risk-oriented taxation may become relevant in the European context as well.

If taxes per amount of pure alcohol were harmonized, the easiest way to do so would be to increase beer and wine taxes to the level of spirit taxes, since the tax rate for pure alcohol in spirits is currently the highest in most countries. Thus, the harmonization would mainly translate into higher tax rates for beer and wine. The tax rate of beer would moderately increase to the point where the rate per amount of pure alcohol in beer is the same as for spirits. A corresponding tax would need to be introduced for wine. Since the absolute amount of pure alcohol is different among beverage types, the absolute amount tax levied will be different too. Empirical results suggest that taxes usually increase prices.<sup>26</sup> Hence, we assume that the modified taxes translate into price changes. As a result, the price of beer would increase slightly and the price of wine strongly (in relative terms). Spirit prices would remain the same.

As explained in chapter 2, the *price factor* measures the effect of price changes on demand. To do so, we derive and calculate own- and cross-price elasticities. For the alcohol market, these elasticities need to include all categories of alcoholic beverage products. In figure 7, three exemplary product categories beer, spirits and wine are formed. As beer and wine prices increase, while the spirits price remain constant, the first and last rows of the elasticity matrix in figure 7 need to be consulted. In the UK, for beer and wine, the own-price elasticity is -0.34 and -0.24, respectively.<sup>27</sup> Hence, the demand of both products

<sup>ii</sup> An average Pils beer contains around 11 degree plato and has 5% by volume pure alcohol. Hence, the tax on 1 hectoliter of Pils, which contains 5 liter of pure alcohol in total, is EUR 8.65.

decreases when their prices increase. For every 1% price increase, the consumption will decrease by 0.34% and 0.24%, respectively. Moreover, we can see a positive cross-price elasticity for spirits in figure 7. The positive cross-price elasticity implies that some of the beer and wine consumption is substituted by spirit consumption. In detail, for every 1% increase in

the price of beer and wine, the spirit consumption will increase by 0.26% and 0.12%, respectively.<sup>28</sup> The cross-price elasticities between beer and wine are comparably small, leading to a moderate substitution level between those two groups. Nevertheless, given the large market sizes of beer and wine, the switching effect would cause a large impact in absolute terms.

Figure 7: Price elasticity matrix of alcoholic beverages

### Elasticity matrix of alcoholic beverages (UK)

Price \ Quantity	Beer	Spirits	Wine
Beer	-0.34	0.26	0.10
Spirits	-0.10	-1.25	0.01
Wine	0.02	0.12	-0.24

■ Own-price elasticity  
 ■ Cross-price elasticity

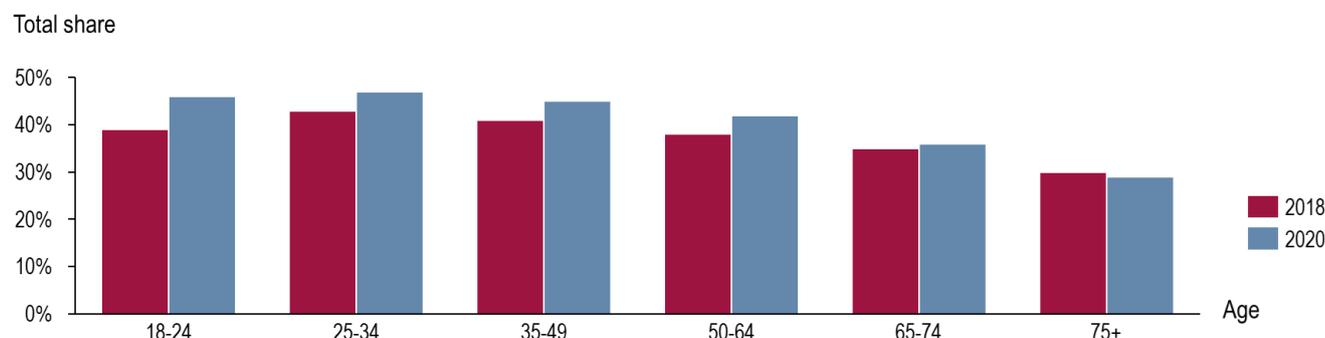
Source: Sousa, 2014<sup>29</sup>

For alcoholic beverages, the *social factor* covers the raising awareness about the harmfulness of alcoholic beverages. As shown in figure 8, the share of consumers trying to moderate their alcohol consumption increased in almost all age groups in the UK. The increase is the highest in the younger age groups (18-24 and 25-34), with around 5 percentage points more

drinkers trying to cut down their alcohol consumption. In the light of the developments in the society illustrated in chapters 1 and 2, it can be expected that this trend continues and intensifies. This developments translates into a decrease in the amount of all alcoholic beverages consumed due to the social factor.

Figure 8: Moderating alcohol consumption over time

### Share of alcohol consumers trying to moderate their alcohol consumption, by age group (UK)



Source: Portman Group, YouGov, 2021

The *market factor* captures future trends in the market for alcoholic beverages. In recent years, the growth of

the craft beer market is an especially important development. While the number of other beers consumed

may remain unchanged by the market factor, the global amount of craft beer is forecasted to grow at a rate of around 12%.<sup>30</sup> Increasing craft beer consumption will most likely cause the total amount of all types of beer consumed to remain stable. However, the market for alcoholic beverages tends to be slow-moving and little innovation has taken place in the years, especially compared to other markets like the meat, sugar, or nicotine market. Hence, we suspect that the market factor plays only a secondary role in shaping the demand for alcoholic beverages and will be dominated by the price and social factor.

Considering the developments in the price, social and market factors, the total development of the market of alcoholic beverages can be derived. With the implementation of the differentiated tax regime and the decrease caused by both the price factor and the social factor, wine consumption decreases in total. For spirits, the price factor causes an increase in the amount consumed, but the social factor a decrease. Which factor prevails depends on the strength of the tax change and the strength of the awareness change. Since the cross-price elasticity is low, the social factor dominates and the total spirit consumption decreases. For beer, the total effect is ambiguous. The price factor and the social factor cause a decrease in consumption, whereas the market factor causes an increase in the amount consumed due to the increasing demand for craft beer. However, since we suspect the market factor for alcohol to be weak, a decrease can be expected. These conclusions are mainly built on observations made in the UK. Since we expect the member states of the EU to develop similarly to the UK, we expect to observe similar developments in the EU. In total, a risk-oriented alcohol taxation leads to decreased consumption of wine, beer, and spirits and therefore to a decrease of total alcohol consumption.

### 3.2 On the nicotine market, a consumption shift from combustible products to non-combustible alternatives takes place

Currently, smoking products are heavily taxed and strongly regulated in most European countries. Taxes account for around 75% to 80% of consumer prices in some countries,<sup>31</sup> and there are several bans in place,

e.g., smoking in public places and promotional activities.<sup>32</sup> In some countries, non-combustible alternatives (NCAs) (e.g., heated tobacco products (HTP), e-cigarettes) are regulated and taxed differently than combustible smoking products (e.g., factory made cigarettes (FMC), fine cut (FC)). As a result, price differentials encourage the consumption of NCAs instead of conventional products. A prominent European example is the UK. In the UK, e-cigarettes are officially recognized as risk-reduced products, and they are recommended as cessation aids. Such examples can also be found outside of Europe. Japan, for instance, does not require health warnings on HTP, whereas they are mandatory for conventional smoking products, and the government officially recognized the reduced number of toxicants in HTP.<sup>33</sup> In countries like Japan and the UK, where NCAs are regulated differently than combustible smoking products, the smoking prevalence is comparably low. Around 18% percent of Japanese men and women smoke, and the smoking prevalence in the UK is around 14%.<sup>34,35</sup> Most countries still struggle with a high smoking prevalence, for instance Germany with a prevalence of 24%.<sup>36</sup> These high-prevalence countries have not yet found a way to decrease smoking as successfully as Japan and the UK. They need to find ways to decrease smoking that go beyond what the regulations have done so far, potentially by following the lead of low-prevalence countries. One possible approach is a differentiated taxation of NCAs and combustibles similar to the UK. In general, a differentiated taxation on the nicotine market describes a situation in which combustible products are taxed higher than NCAs. Given that taxes are passed to the consumer and hence translate to prices,<sup>37</sup> this differentiated taxation creates a price differential between combustible products and NCAs. The comparably lower price of NCAs then reflects their relative lower harmfulness and incentives smokers to switch to NCAs.

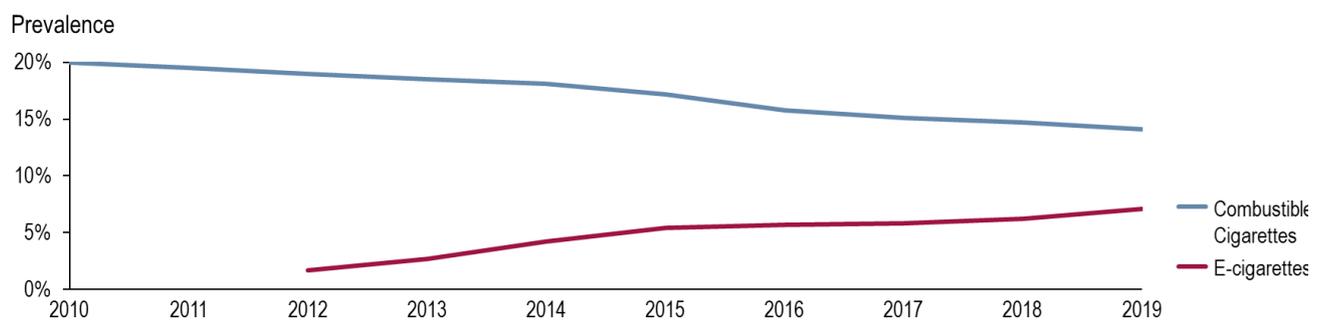
As explained in chapter 2, the *price factor* measures the effect of price changes on demand by using price elasticities. The own-price elasticity of combustible smoking products is negative – if the price of FMC and FC increases, their demand decreases. Positive cross-price elasticities, on the other hand, show that

some smokers quit smoking or reduce their consumption, while others who do not quit will switch to substitution products like NCAs.<sup>38</sup> Additionally, switching to NCAs can offer smokers a path towards quitting smoking in the long run. This development can clearly be seen in the UK. Over the last decades, taxes and subsequently prices for combustible products have continuously increased.<sup>38</sup> At the same time, their demand and the smoking prevalence have decreased, as illustrated in the downward-sloping dark blue line in

figure 9. The opposite effect is true for NCAs. The positive cross-price elasticities between combustible products and NCAs show that after the price of conventional smoking products increased, the amount consumed of NCAs increased as well, since some consumers substituted their consumption of combustible products with NCAs.<sup>39</sup> The upward-sloping red line in figure 9, which represents the NCA prevalence (in this case e-cigarettes), is partly caused by this price effect.

Figure 9: Smoking prevalence and e-cigarette consumption

### Development of smoking prevalence and e-cigarette consumption in the UK



Source: IPE based on Public Health England, 2021 and European Commission, 2021

In addition to the demand changes caused by the price factor, the *social factor* is strongly shaping the market. With increasing health awareness, a decrease in the number of consumed combustible products is observable. It is composed of those who quit, those who reduce their consumption and those who switch to NCAs. Over the last years, around 15% of smokers have tried to quit smoking. The intensity of smoking, measured by the average number of cigarettes a smoker smoked per day, have also decreased by almost 15%.<sup>40</sup> When current smokers were asked about their willingness to try e-cigarettes, around 20% planned to try e-cigarettes.<sup>41</sup> Combining these three empirical observations, one can predict the total expected decrease in the demand for combustible cigarettes due to the social factor.

The third input factor, the *market factor*, describes the ongoing market growth dynamics in the industry. Based on the increasing quality of NCAs over the last years, one can expect them to become more

sophisticated and the consumption experience to be closer to combustible products. This consumer experience will lead to an increase in the willingness to switch and cause a further increase in the demand for NCAs. On the other hand, the above-described awareness change also impacts current NCA consumers. Around 60% of NCA users currently plan to quit NCA use.<sup>42</sup> Assuming that the switching behavior of a current smoker of combustible products offsets the quitting attempts of current NCA users, we can expect total NCA consumption to increase because of the market factor.

Adding the developments of the price factor, the social factor, and the market factor, one can derive the total development of the nicotine products market. These factors cause a decrease in the amount of consumed combustible products. Hence, the demand for cigarettes declines. The total amount of consumed substitute products (NCAs) increases, since all three factors

will lead to an increase in the amount of consumed NCAs.

### 3.3 The price and market factor dominate the social factor, causing a decline in the consumption of sugar-sweetened beverages

Diabetes, overweight and obesity are among the most pressing challenges for our health care systems, with overweight prevalence among adults going beyond 50% in several countries and the obesity rate more than tripling in the last 50 years.<sup>43</sup> Some countries harness taxes on unhealthy and high-calorie products to tackle these problems. Popular examples are the sugar taxes on sugar-sweetened beverages (SSBs) in the UK, France, and Mexico.<sup>44</sup> However, in the EU, there is no consistent regulation. Some EU member states like Germany rely on a voluntary commitment of the industry to reduce the levels of unhealthy ingredients like fat, sugar, and salt. Given that the WHO frequently advocates the introduction of a tax on SSBs and that most of the public is in favor of such a tax, an EU wide introduction of such a tax is becoming very likely.<sup>45,46</sup> In case it is introduced, the tax would be a binding minimum tax for all member states. Hence, nothing would change for member states that already have a tax on SSBs above the minimum tax rate, but countries like Germany with no sugar tax would need to introduce such a tax. With a fixed tax per gram of sugar, SSBs are then taxed according to their level of harmfulness: the absolute tax on SSBs with a high sugar content exceeds that of beverages with a lower sugar content.<sup>47</sup><sup>iii</sup> Given that these tax differences translate to prices, prices for SSBs would increase in countries like Germany. This increase would be proportional to their sugar concentration. Thereby, a risk-based price differentiation is created: the healthier a product is due to its sugar content, the higher is its price.

The introduction of the tax and the subsequent increase in prices for SSBs influences their demand, which is captured by the *price factor*. Given a negative

own-price elasticity of demand (-1.37, i.e., an increase of 1% in price causes a decrease in demand by 1,37%)<sup>48</sup>, the amount of SSBs consumed will decrease as a response to the tax change. Since the price increase for low-sugared beverages is smaller than the price increase for high-sugared beverages, the decline in demand will also be lower. Some consumers will just decrease their consumption without substituting it, others will substitute SSBs with non-sugared beverages like water or low-sugar SSBs. An evaluation of the SSB tax in France found that soft drink consumption declined by 3% immediately following the introduction of the tax.<sup>49</sup> This evidence indicates the expected scale of change when a similar tax is introduced in the EU. For water, they found no significant increase in the amount consumed. Hence, water seems to be only a weak substitute for SSBs, and its consumption will not be affected when a SSB tax is introduced.<sup>44</sup> An opposite effect is observable in the *social factor*. Whereas the price factor causes a decrease in SSB consumption, the social factor causes an increase. Over the last decades, there has been a constant rise observable in the amount of SSBs consumed. From 1990 to 2011, the proportion of adults in Germany who regularly consumed SSBs increased by around 9 percentage points and those who occasionally consumed them by 7 percentage points.<sup>50</sup> It is likely that this trend will continue when no regulation is implemented. With the differentiated taxation being introduced, the increase simply faces a counter development.

The *market factor* is driven by market changes responding to the current situation. With more consumers becoming health aware and critical about high sugar concentrations, several producers have reformulated their products to contain less sugar. For example, Coca-Cola have reduced the sugar content in their beverages by 11% in 2015.<sup>51</sup> This reduction can be projected to future developments to calculate the effect of the market factor on the consumption of SSBs. With the reformulation of recipes, the number of beverages with a high sugar content on the market

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<sup>iii</sup> In the UK, the tax for beverages with low sugar content is applied to products with 5g to 8g of sugar per 100ml, the

tax for beverages with high sugar content to products with more than 8g of sugar per 100ml.

and consumed decreases, whereas the amount with low sugar content on the market and consumed increases.

Putting all factors together, there is a clear picture observable. The taxation of SSBs will increase the amount of SSBs with low sugar levels. The amount of SSBs with high sugar levels most likely decreases. Although the social factor alone would cause an increase, it is opposed by the price factor and the market factor and we expect the overall trend to be dominated by the latter. Hence, in total, we expect a decrease in consumption for high sugar SSBs.

# 4

Fiscal policies on  
unhealthy products and  
reduced regulation on their  
substitutes can significantly  
benefit market participants

Consumers in the EU are shifting away from unhealthy products and towards less harmful substitutes. This change in consumer behavior is mainly driven by social, price and market trends. The social factor (e.g., increased education standards), the prices factor (e.g., higher prices lead to reduced consumption), and the market factor (e.g. increasing innovation) are creating new consumption patterns and pushing governments to implement new fiscal instruments that accelerate beneficial switching behavior.

Fiscal instruments (i.e., taxes or direct subsidies) are an effective vehicle for policymakers to further steer industry dynamics in the desired direction. Properly designed fiscal policies can benefit all three market participants (society, industry and government) in their own way: society can expect to be healthier (reduced number of diseases, improved overall health status); industry can offer a greater number of more value-added substitute products; and government can benefit from society's improved health situation and a reduction in social expenditures. Despite reductions in demand for unhealthy products, the FMCG industry can benefit from new substitute product markets, accelerated innovation cycles, and the potential to enter untapped (growth) markets.

Industries aside from the FMCG industry have already experienced similar transformation dynamics. The EU Commission's Energy Tax Directive (ETD) has already successfully implemented a differentiated fiscal policy. Implemented in 2003, the ETD set out to substitute outdated energy technologies with clean/low-carbon technologies. The policy used unattractive taxation, i.e., minimum fuel tax rates, to foster sustainable substitutions and help clean/low-carbon technologies innovative and achieve a breakthrough.<sup>52</sup> The policy is subject to regular reviews and adjustments. Its latest adjustment was drafted and presented in July 2021.

It demanded the removal of disadvantages for clean technologies, the introduction of higher taxation levels for inefficient and polluting fuels, and carbon pricing through emission trading.<sup>53</sup> Hence, the ETD serves as framework for applying differentiated regulation: it encourages fossil fuels to be taxed according to their impact on the environment in the EU.

Overall, the FMCG industry still is in the process of change and only the future will tell how much current consumption trends will impact it in the long run. Nevertheless, a comprehensive transformation of the industry can be expected. Fiscal policies implemented by governments (e.g., through differentiated taxation) can further accelerate the transformation process. By taxing high-risk products higher than reduced risk products, demand for these high-risk products is gradually decreasing. The model described above can be used to see the quantitative effects of different fiscal policy measures before they are implemented. Based on these results, the effects of fiscal policies on the economy or labor market for a country or region can be analyzed. For example, the production of substitute products has different job requirements than the production of unhealthy products. It can also be used as a basis for evaluating the effectiveness of existing regulatory measures and optimizing them if necessary. For the industry, the model can be used in individual markets as a basis to build tools that quickly show effects and present these in an easy to understand way. The tool can also be used to address, inform, or guide different stakeholders. The selected case studies have shown that the importance of substitute products will tend to increase in upcoming years. Companies need to be aware of the ongoing transformation process. To ensure long-term preservation in the industry, companies should therefore steer their business models toward investing in growing substitute product markets.

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