

Economic Impact of the Turkish Brewing Sector

November 2016



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1. Key Messages

The economic impact of the Turkish brewing sector

The present study consists of the third report that EY conducts for the benefit of the Turkish Association of Beer and Malt Producers. Our first report for the years 2009 and 2010 was published in 2011, whereas the second was published in 2013 and covered the years 2011 and 2012.

In this report we progress and update the analysis in a number of domains, most critically bringing the assessment of impact up to date for the years 2013, 2014 and 2015.

The study reaffirms that the beer industry continues to make strong contribution to the Turkish economy generating value both in upstream and downstream sectors related to beer production and selling with knock-on impacts in employment and tax revenues generation.

The key economic messages from the current study include:

Beer volumes

- In 2015, there existed 9 companies brewing beer in Turkey, which together were operating 12 different breweries producing 37 different brands of beer
- Total beer production in 2015 reached 9.8 million hectoliters (hl), which was about 430 thousand hl lower than the production of 2014.
- Just over 9 million hectoliters of beer have been consumed in Turkey in 2015, which compared to 2013, represented an increase by approximately 3%.
- About 8% of the total beer produced in Turkey was exported, which amounted to nearly 800 thousand hl. Main export markets included Iraq, which accounts for one third of total exports, followed by Lebanon, the EU, Azerbaijan, the UAE and Canada.
- Imports of beer in Turkey are relatively low. In 2015, approximately 62 thousand hl of beer were imported, which amounted to about EUR 8.1 million in value terms.

Economic impact

- The economic activity triggered by the production and sale of beer in Turkey contributes significantly to government finances. In 2015, these total contribution to tax revenues amounted to nearly €2.4 billion, which was about 20% higher than the estimated tax contribution for 2013. About 55% (0.21 billion euro) of this increase is made up by the increased excise duty revenues since 2013.
- The total impact of the Turkish beer industry in terms of value added generated in 2015 amounts to about EUR 908 million. Of this, approximately 46% was generated in the hospitality and retail sectors (on and off trade respectively), with direct and supply sectors following at 37% and 17% respectively.
- The production and sale of beer in Turkey is estimated to support a total of approximately 79.400 jobs in 2015. About 2.400, of these, were in the beer sector directly, 13.800 jobs in the supply sectors, and almost 63.200 in the hospitality and retail sectors (approx. 52.300 and 10.900 jobs in the on-trade and off trade sector, respectively).

Increasing excise rate on beer

- The excises levied on beer have been subject to frequent changes. Since 2002, they have been raised more than 15 times. As of 2015, the excise tax imposed on beer in Turkey was nearly 10 times higher than the average excise duties in countries with similar GDP PPS per capita, as Turkey, and about 4 times higher than the average of the European Union Member States.
- Analysis indicates that taxation on beer in Turkey is quite close to that of spirits. In other words there are few or no distinctions made between the taxation on beer and spirits despite the fact that the alcohol content in the final products of spirits is significantly higher than beer. This treatment implies an overburdening of beer, in terms of tax per liters of pure alcohol, relative to other beverages with much higher alcohol content.

2. About The Study

2.1 Purpose of the study

The present study has been commissioned by the Turkish Beer and Malt Producers' Association (BMÜD) in order to quantify the economic impact of the brewing sector in Turkey.

2.2 Economic impact

An economic impact model was constructed with view to estimating impacts across three dimensions:

- ▶ **Direct impact** - This represents the impact generated in the businesses brewing beer in Turkey, that is the companies engaged in the production of beer in the country.
- ▶ **Backward impact** - This represents the upstream impacts in the supplying sectors of the brewing industry. To be able to produce beer, breweries need to purchase a highly diverse range of goods and services. Among other, these include raw materials, such as, barley, malt, hops, and water, as well as many types of packaging and bottling materials such as glass and aluminum. Breweries also hire engineers, marketing and communications agencies and many more other services. In this study, six supply sectors are distinguished, namely agriculture (raw materials); utilities; packaging and bottling industry; equipment, manufacturing and other industrial activities; transport and storage; and media, marketing and communication.
- ▶ **Forward impact** - This represents the downstream impacts in the businesses selling beer, particularly the retail outlets (also referred to as off-trade) and the hospitality sector (also referred to as on-trade). The reported forward impact only concern the effects caused by sales of beer. As such, the effects caused by the sales of other drinks in the on-trade and off-trade (such as coffee, tea, juices, spirits, and wine) are not within the scope of this study and are thus not taken into account.

The above-mentioned effects have been measured in three areas, namely employment, value-added and government revenues. It is important to stress that these are not additional effects, but rather three ways in which the same effects can analyzed. The effects in the three areas, are mentioned and defined below:

- ▶ **Employment** refers to the number of persons employed in the brewing sector, the supply sectors resulting from the production and sale of beer and the number of jobs in the hospitality and retail sectors associated with the sale of beer.
- ▶ **Value-added** refers to the amount of value that is added to a product or service by a company before the product is offered to customers. In other words, it consists of the difference between the value of output and the value of purchased goods and services (intermediate inputs). In economic terminology value-added is also defined as the reward for all production factors (mainly labour and capital).
- ▶ **Government revenues** include all amounts of money received from sources outside the government entity from taxation, fees, fines, and licenses. In the scope of this study these revenues include corporate tax, excise revenues on beer, VAT on beer sold in the hospitality and retail sector and all labour-income-related revenues from jobs in the brewing sector and jobs in other sectors generated by beer production and sales. These income-related revenues include personal income tax, social security contributions paid by employees and social security contributions and payroll taxes paid by employers.

2.3 Data collection

The majority of reported outcomes are based on questionnaires received from the Beer and Malt Producers' Association of Turkey (BMÜD) and the two largest beer producers in Turkey, namely Anadolu Efes Biracılık ve Malt Sanayi A.Ş. (Anadolu Efes) and Türk Tuborg Bira ve Malt Sanayii A.Ş. (Türk Tuborg). Where data was not available, we drew information from various other sources. By order of importance the sources that we used for our analysis include:

- ▶ data from the Tobacco and Alcohol Market Regulatory Authority in Turkey (TAPDK);
- ▶ data obtained from a questionnaire completed by the national beer and malt producers' association (BMÜD);
- ▶ data collected directly from Anadolu Efes and Türk Tuborg through a detailed questionnaire;
- ▶ data from the Turkish Statistical Institute (Türkiye İstatistik Kurumu, TurkStat / TÜİK);
- ▶ data from additional (public) sources, such as the USDA Foreign Agricultural Service, the Brewers of Europe, the European Commission, Eurostat, UN COMTRADE and WHO.

The base years for the analysis are 2013, 2014 and 2015. If data was not available for these years, data from previous years was used.

2.4 Economic model

Some of the reported outcomes are estimated on the basis of an economic model constructed by EY. For this reason, these outcomes are not a direct representation and are dependent on methodological choices made by EY. These choices are elucidated in Annex III. The methodology used for estimating the economic impact is described in Annexes I to III.

2.5 Country comparisons

In addition to the analysis of the brewing sector in Turkey, the report also provides comparisons with brewing sectors of European Union members. These are based on data and analyses provided by the Brewers in Europe for 2014 and 2015. Beyond those, further comparisons with other neighboring countries (e.g. Iraq, Georgia, Syria and Armenia) were not possible due to lack of comparable and reliable data.

The comparisons with EU countries are organised into two different groups. The first group consists of countries with a similar gross domestic product per capita in purchasing power standards (GDP PPS) to Turkey, namely Bulgaria, Romania, Hungary and Slovak Republic. For the second comparison group we selected the four EU Member States with the highest taxation on beer in the EU, namely the United Kingdom, Ireland, Sweden and Finland. Apart from these two comparison groups, we also include where possible the average of the EU Member States (EU28). The comparative analysis is based on data from 2015, although in certain instances where up to date data were not available we applied 2014 figures.

For further details on the methodology and scope of this study, please refer to Annex I, II, III and IV.

3. The Turkish Beer Market

3.1 Highlights

The present study has been commissioned by the Turkish Beer and Malt Producers' Association (BMÜD) to quantify the economic impact of the brewing sector in Turkey.

Key figures	2013	2014	2015
Production (in hectolitres)	9.808.836	10.252.574	9.819.430
Exports (in hectolitres)	1.048.326	868.262	799.486
Imports (in hectolitres)	28.619	47.681	62.034
Consumption (in hectolitres)	8.760.510	9.384.311	9.019.944
Consumer spending on beer (EUR billion)	3,3	3,8	4,1
Brewing companies (#)	9	9	9
Breweries (#)	14	13	12

Sources: TAPDK, Questionnaires BMÜD, EY Analysis.

3.2 Production

Production of beer in Turkey continues to be dominated by two major players, namely Anadolu Efes Biracılık ve Malt Sanayi A.Ş. (Anadolu Efes) and Türk Tuborg Bira ve Malt Sanayii A.Ş. (Türk Tuborg). These two companies together account for nearly 99% of the market, served though a combined total of five breweries. In addition to these, there exist seven smaller companies active in the Turkish market, which combined operate another 7 breweries in the country.

As of 2015, there existed 37 different brands of beer in Turkey, of which more than 80% were produced by the two leading players, Anadolu Efes and Türk Tuborg. In the same year, the sector produced approximately 9.8 million hectoliters (hl) of beer; this was about 430 thousand hl lower than the production of 2014 (approx. 10,2 million hl) and about 11% lower than the peak production of 11 million hl in 2012.

Besides the brewing, production and sale of beer, these brewing companies also carry out other beer-related activities such as the cultivation of agricultural products needed for the production of beer, the transportation of beer, the wholesale of beer, the bottling and packaging of beer, and production and sales of malt. Some brewing firms also exploit pubs.

Beer company	Number of breweries	Number of brands
Anadolu Efes	4	18
Türk Tuborg	1	9
Elif Turizm	1	2
Park Gıda	1	2
Trol Turizm	1	2
Süral Otelcilik	1	1
AD Yiyecek	1	1
AYS Alkollü Alkolsüz	1	1
Sardunya Gıda	1	1
Total	12	37

Sources: Questionnaires, EY Analysis

3.3 Exports and imports

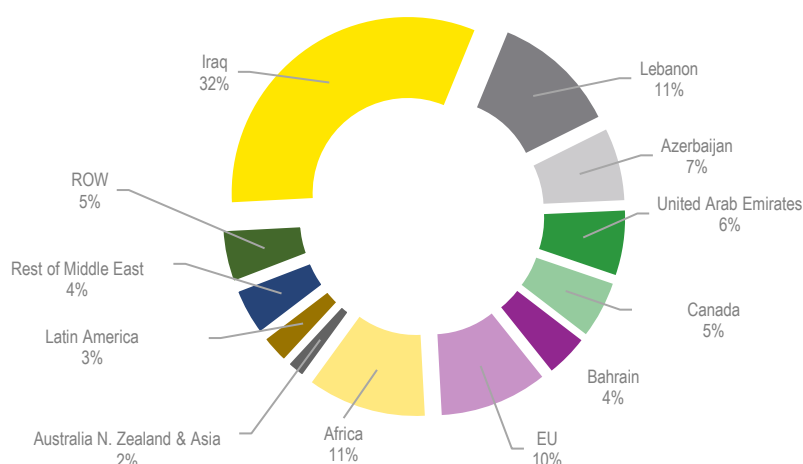
Based on available data, in 2015 about 8% of the total beer produced in Turkey was exported, which amounted to nearly 800 thousand hl. In 2013, the share of exports to total production was slightly higher, at 11%, and corresponded to just over 1 million hl. In value terms, Turkish exported beer amounted to EUR 42, 3 million in 2015. This about 5% lower the value of the beer exported in 2014.

	2013	2014	2015
Export in hl	1.048.326	868.262	799.486
Export in value (EUR)	52.230.815	44.616.159	42.324.176

Sources: TAPDK, EY Analysis

The main export markets for Turkish beer are Iraq, which accounts for nearly one third of total exports, followed by Lebanon (11%), the EU (10%), Azerbaijan (7%), the UAE (6%) and Canada (5%). As regards the EU, the leading export destinations include Germany, Romania, Bulgaria, France and Austria. In terms of other regions, Africa accounts for about 11% of total Turkish exports of beer, while the rest of Middle East for about 4%.

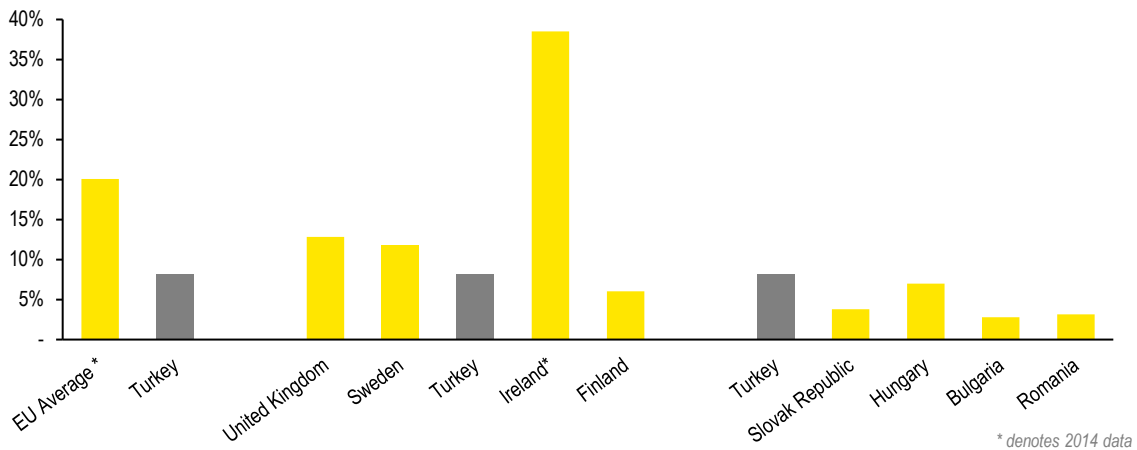
Figure 1: Beer export of Turkey by major destinations, 2015



Source: UN COMTRADE database, EY Analysis

The next figure illustrates exports as percentage of production per country. Overall, compared to the average for the EU 28, Turkey exports less beer when the percentage of export in total production is considered. Based on the same parameters, compared to the countries with the highest excise duties levied on beer, Turkey has a roughly similar export level with these countries, such as Finland and Sweden (with the possible exception of Ireland which tripled its exports over the last three years). On the other hand, compared to the countries with similar gross domestic product per capita in purchasing power standards (GDP PPS), Turkey exports more beer than some of these countries, such as Romania and Bulgaria.

Figure 2: Exports as percentage of production per country in 2015



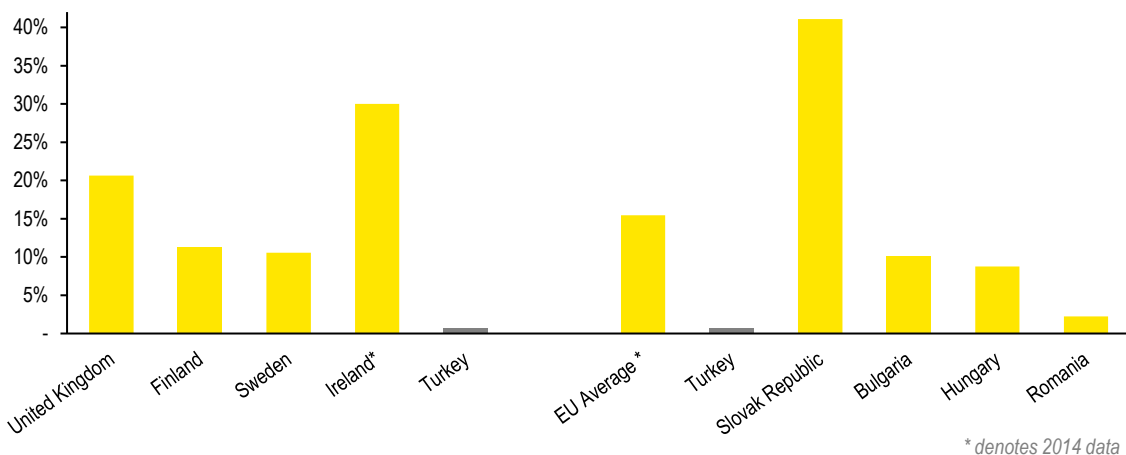
Sources: Data from Brewers of Europe, EY Analysis

Imports of beer in Turkey are relatively low by comparison, even though they have exhibited some growth in recent years. In 2015, approximately 62 thousand hl of beer were imported, which amounted to about EUR 8.1 million in value terms. This was more than double of the total imports of beer in 2013 in both volume and value terms. Yet, it represented just 0.7% of the total beer sold in Turkey, which is fairly low compared with other countries.

Table 4: Beer import of Turkey			
	2013	2014	2015
Import in hl	28.619	47.681	62.034
Import in value (EUR)	3.832.783	5.436.279	8.127.847

Sources: TAPDK, EY Analysis

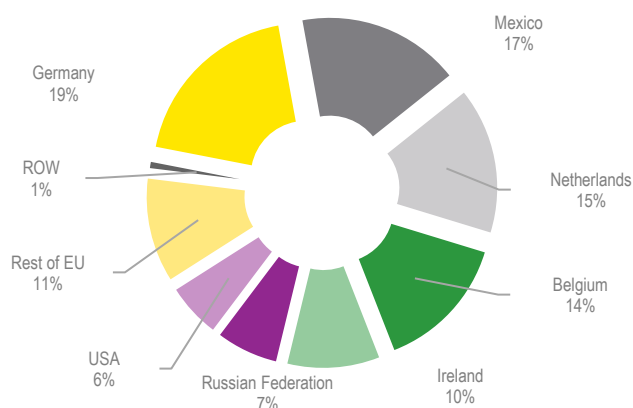
Figure 3: Imports as share of consumption per country in 2015



Sources: Data from Brewers of Europe, EY Analysis

Analysis of available data from UN COMTRADE database indicate that Turkish imports of beer are primarily from EU countries. As illustrated in the figure below, in 2015 about 58% of beer imports were from Germany, Netherlands, Belgium and Ireland combined. In terms of non-EU imports Mexico leads with 17% share of total, followed by Russia and USA at 7% and 6% respectively.

Figure 4: Beer imports of Turkey by source, 2015



Source: UN COMTRADE database, EY Analysis

3.4 Consumption

Just over 9 million hectoliters of beer have been consumed in Turkey in 2015. Compared to 2013, consumption has increased by approximately 3% (nearly 260.000 hectoliters), yet it still remains below the peak levels of 2012, when total domestic consumption reached approximately 10 million hectoliters.

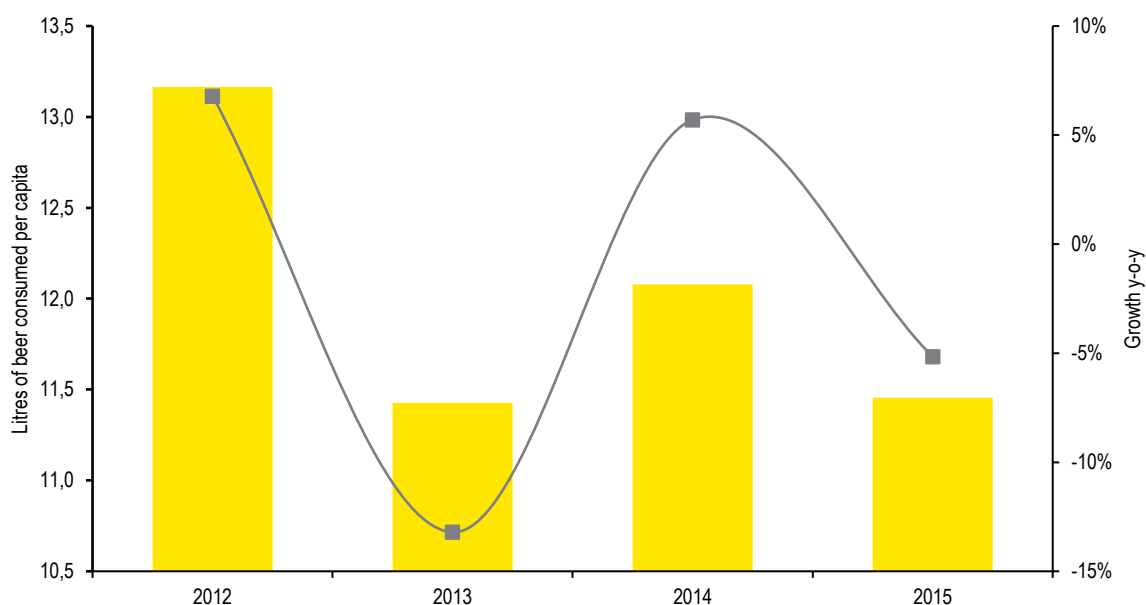
Country	Final product beer per person consumed
Czech Republic	143,0
Germany	106,0
Austria	105,0
Romania	80,0
Ireland	79,9
Finland	77,0
Bulgaria	73,5
Belgium	71,0
United Kingdom	67,2
Norway	49,0
Sweden	46,9
Turkey	11,5
Slovakia	73,0
Croatia	77,0
Estonia	71,0
Average EU 28 (2014)	68,3

Sources: Data from Brewers of Europe, EY Analysis

Compared to EU Member States, beer consumption per capita in Turkey remains fairly very low. In 2015, it amounted to 11.5 liters per capita down from the peak levels of 2012 (13,2 per capita). In the EU, average per capita consumption of beer based on 2014 date across all member states

amounted to 68 liters. If we look at the evolution of per capita beer consumption in Turkey over the last four years (2012-2015), it turns out that it has fluctuated significantly since the peak of 2012.

Figure 5: Beer consumption per capita in Turkey per year



Sources: TAPDK, Questionnaires BMÜD, EY Analysis

Table 6: Beer consumption per capita in Turkey per year			
	2013	2014	2015
Litres of beer consumed per capita	11,4	12,1	11,5

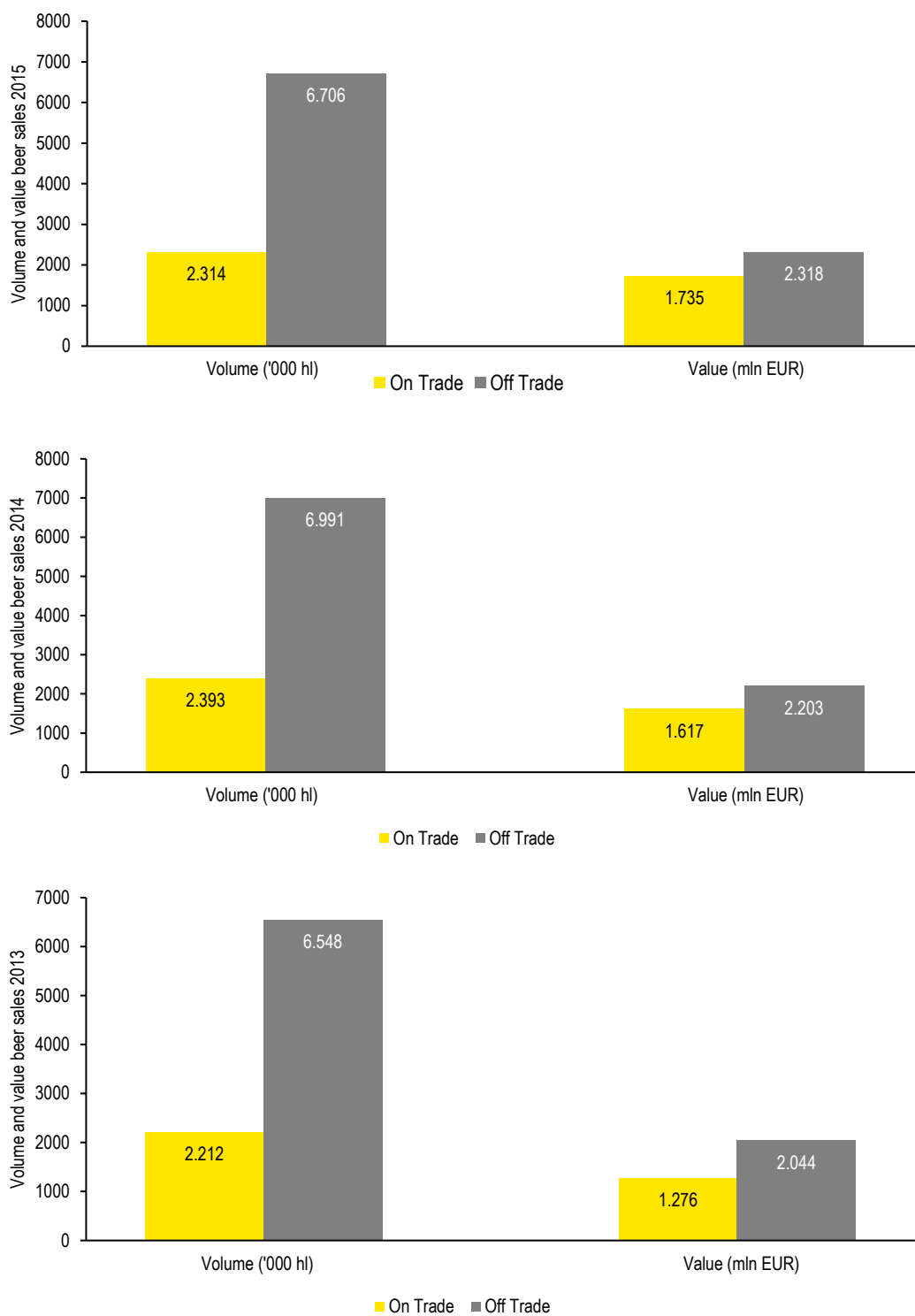
Sources: TAPDK, Questionnaires BMÜD, EY Analysis

3.5 Distribution channels

Of all the beer consumed in Turkey, about 74% is purchased in supermarkets and other retail outlets, also referred to as the off-trade channel. The remaining 26% is purchased in the on-trade channel, which includes bars, restaurants and other drinking establishments. These shares have changed slightly since 2013, when consumption at home, purchased from in retail outlets, peaked at nearly 76% relative to 24% in drinking and other hospitality establishments.

Overall, the relative recovery of on-trade sales would have positive consequences for the overall number of jobs in the sector. On-trade economic activities are, in general more labour intensive than off-trade, largely due to the additional services that they provide. As such the shift to on-trade consumption may have created more jobs across the board. The reverse is of course true for 2013, when consumption leaned in favour of off-trade.

Figure 6: Volume and value beer sales 2013, 2014 and 2015



Source: TAPDK, Questionnaires, EY Analysis

4. Government Revenues

4.1 Highlights

Government revenues	(mln EUR) 2013	(mln EUR) 2014	(mln EUR) 2015
Excises	1.134	1.259	1.344
VAT - Hospitality sector (on trade)	195	247	265
VAT - Retail sector (off trade)	312	336	354
Social contributions	259	284	310
Corporate taxes	8	16	19
Other taxes	58	51	59
Total	1.965	2.193	2.350

Source: Questionnaires, EY Analysis

4.2 Government revenues

The economic activity triggered by the production and sale of beer in Turkey contributes significantly to government finances through a range of channels including excise duties levied on beer (ÖTV), Value Added Tax (18%), and income-related taxes and social security contributions paid by workers and their employers in the brewing sector, as well as in the upstream and downstream sectors whose jobs can be attributed to 'beer production and sale'. These include the supply sectors, on-trade channels and retail sectors. In addition to these taxes, the Turkish government also benefits from other taxes related to beer production. These include corporate taxes, property taxes (for example taxes on real estate), environmental taxes, announcement and advertising tax, Stamp Tax, TAPDK Product Monitoring Amount, TAPDK Sales Service Amount, fuel tax, packaging taxes, and vehicle excise duty.

The excises levied on beer have been subject to frequent changes. Since 2002, they have been raised more than 15 times. The last increase of the excise rate dated July 2016 (an annual increase of 18,5%). In addition to that, the rates of other taxes, such as property taxes (for example taxes on real estate), some environmental taxes, announcement and advertising tax, Stamp Tax, TAPDK Product Monitoring Amount, TAPDK Sales Service Amount, packaging tax and the fuel tax have also been increased in the recent years.



In 2015 the total tax revenues generated from beer related activities amounted to about EUR 2.4 billion

Our analysis has undertaken an estimation of tax revenues generated for the Turkish government in 2013, 2014 and 2015, as arising from the production and selling of beer in the country. In 2015, these tax revenues amounted to nearly €2.4 billion. The

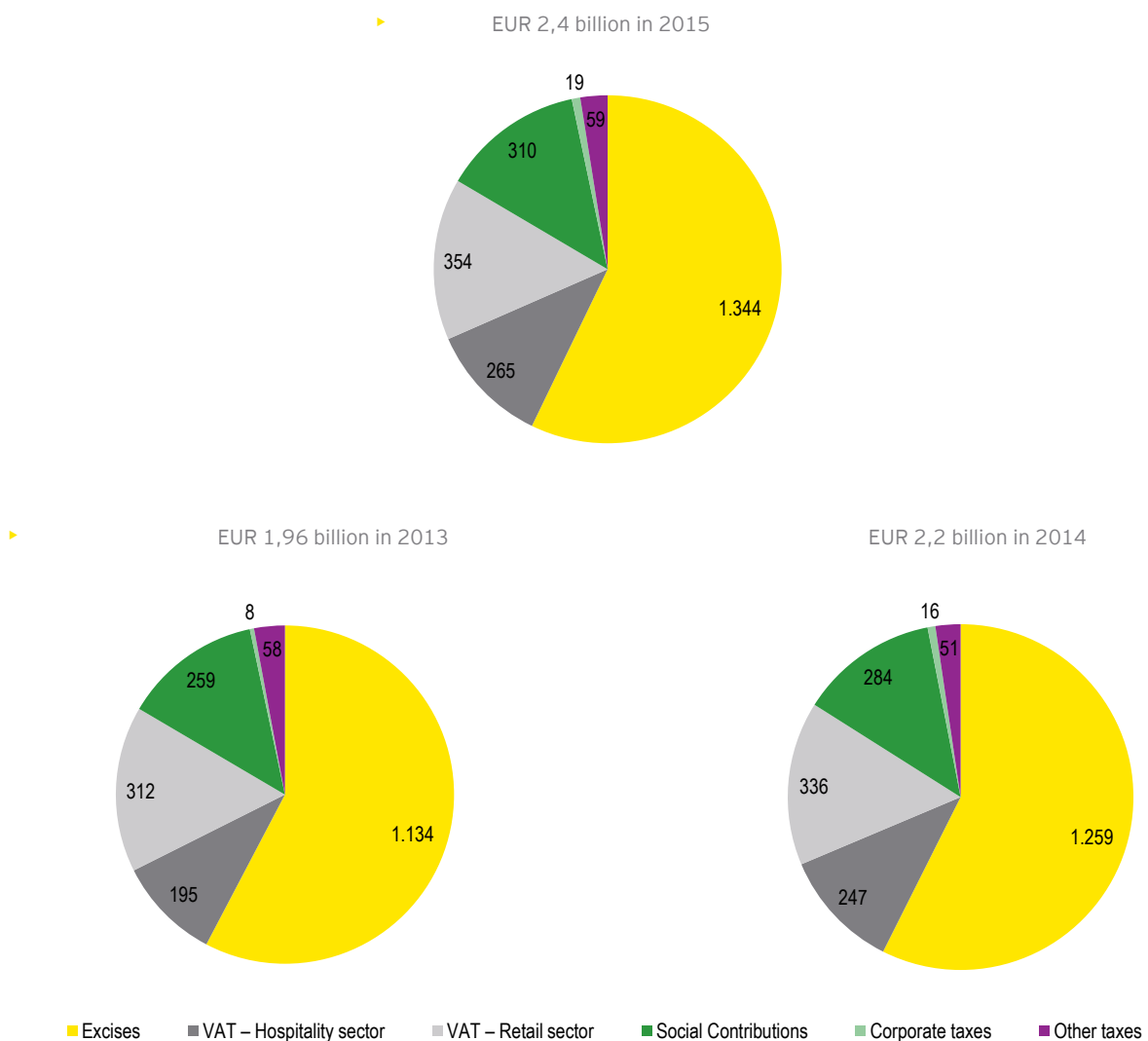
revenues from the taxes that have been taken into account were 20% higher than the estimates for 2013. About 55% (0.21 billion euro) of this increase is made up by the increased excise duty revenues since 2013.

Research by the Brewers of Europe has shown that changes in excise duty rates tend to affect consumption and tax revenues of beer not only directly, but also through the revenues obtained

throughout the supply chain. Analysis has shown that a reduction in the consumption of beer as a response to an increase in excise duty rates would lead to less beer being produced, meaning that fewer raw agricultural materials (e.g. barley and hops), transport, bottling and packaging (e.g. bottles and cans) would be required.

This could mean less employment in supplying industries and therefore a smaller base for income tax in those sectors. Similarly in the hospitality industry lower consumption may imply fewer staff needed in order to serve drinks in drinking establishments, thus even further reducing employment and labour tax revenues. Finally, lower consumption implies less VAT revenues, thus further reducing potential tax bill collected.

Figure 7: Government tax revenues from beer industry

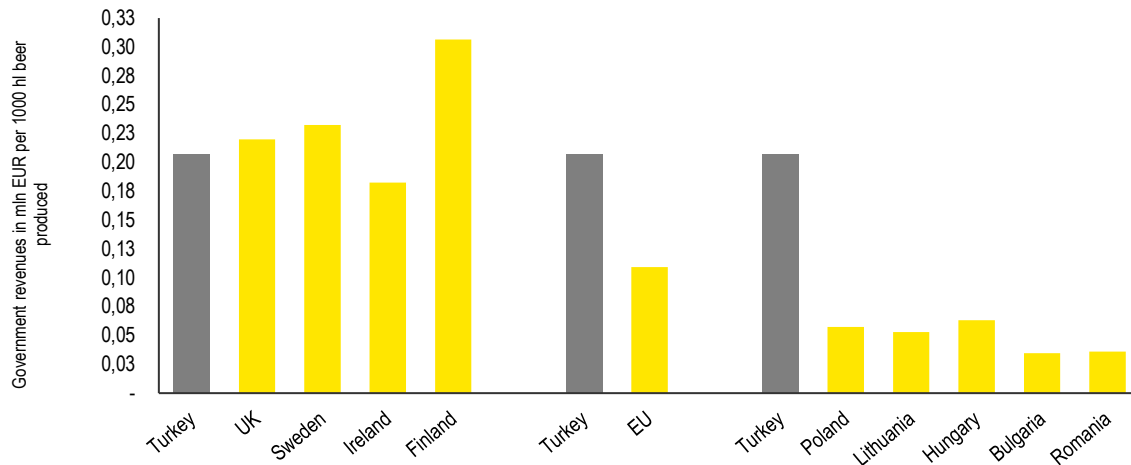


Source: Questionnaires, EY Analysis

To provide a better picture over Turkey’s position in taxes generation due to beer related activities, a comparison with other countries was undertaken. In order to facilitate comparisons, we have analysed tax revenues for different countries against 1000 hectolitres of beer produced. In the case of Turkey, the revenues on corporate taxes were excluded since this information is not available for the EU Member States. Accordingly, in the country comparisons (figure 8 bellow) only the government revenues on excises, VAT, income taxes and social security revenues have been taken into account.

As illustrated in the figure below, in Turkey for 1000 hl beer produced, the Turkish government has received € 0.21 million. Based on our analysis of data from the Brewers of Europe the figure for Turkey is higher than the average for EU28. It's also higher than the revenue realized in countries with similar GDP per capita in PPS as Turkey, where respective governments received 0.03 to 0.06 million for 1000 hl beer produced. In absolute figures, Turkey receives roughly the same amount of revenues for 1000 hl beer produced as Sweden, UK and Ireland, which are the countries known for their high taxation on alcoholic beverages.

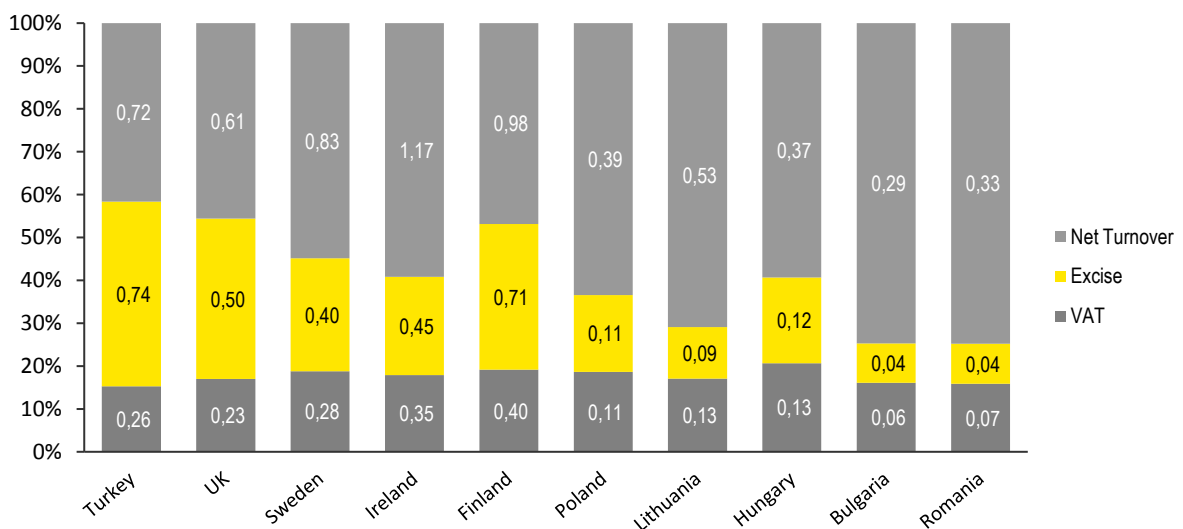
Figure 8: Government revenues per 1000 hl beer produced in 2015



Source: Brewers of Europe, EY Analysis

Of the four taxes mentioned before, only VAT and excise taxes are levied directly on the consumption of beer. Therefore, in order to capture the effect of these direct taxes, we have performed two additional comparison analyses on country basis, including the government revenues on VAT and excises. Based on our calculations in Turkey, for each bottle of beer sold off-trade, approximately 1 euro go to the government in the form of VAT and excises. This ratio for Turkey is comparable to the United Kingdom and Finland, the countries which have the highest tax level within the EU Member States.

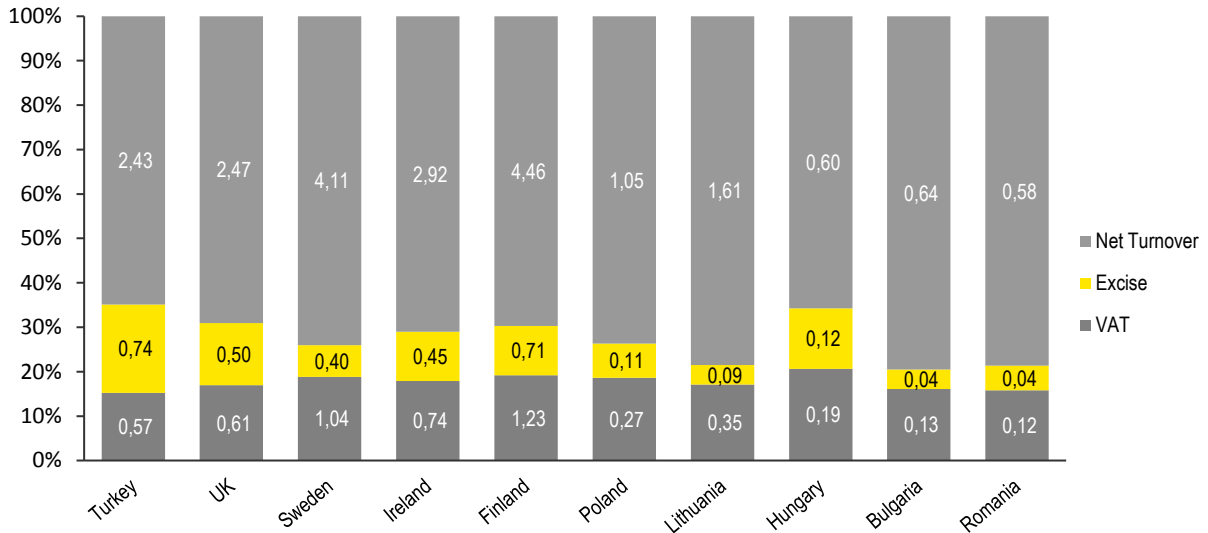
Figure 9: VAT and excise revenues per 50 cl beer 4.8% ABV in the off-trade channel in 2015



Source: Brewers of Europe, EY Analysis

If the same calculation is performed for the on-trade channel, it turns out that for each bottle of beer sold on trade Turkey, 1,3 euro go to the government in the form of VAT and excises. In EU Member States with a similar GDP PPS 0.16 to 0.31 euro go to the government.

Figure 10: VAT and excise revenues per 50 cl beer 4.8% ABV in the on-trade channel in 2015



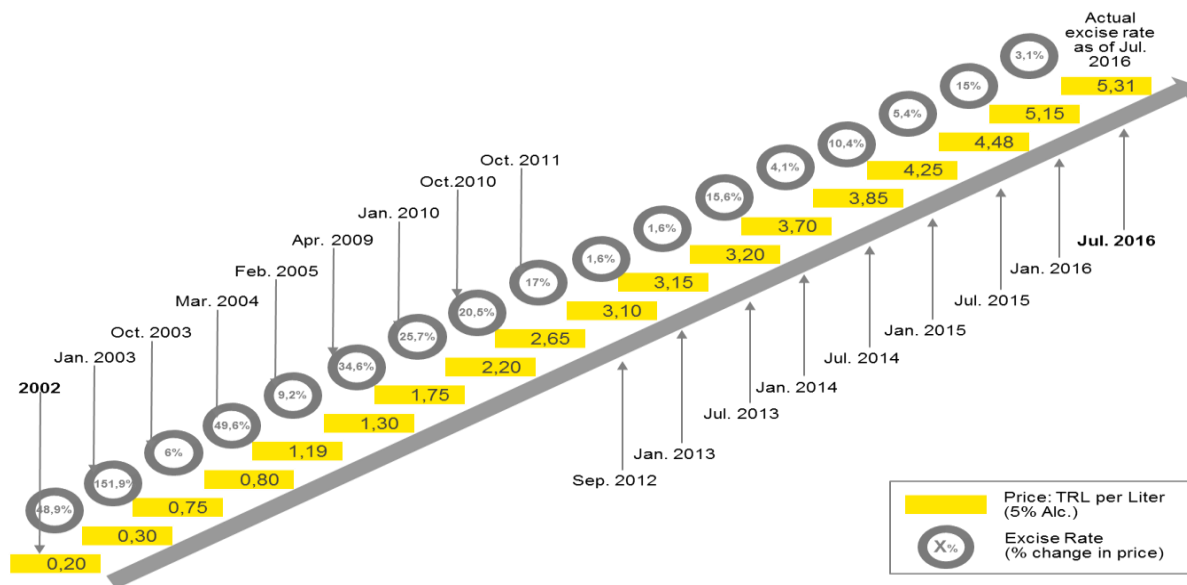
Source: Brewers of Europe, EY Analysis

4.3 Excises on alcohol beverages

4.3.1 General developments

As mentioned in the previous sections, the excise rate levied on beer has been raised fifteen times since 2002. The figure below shows the exact timing and amount of the increases in TRL currency. Because of the Law on Excise Duties, the excise duties of alcoholic beverages and tobacco products will be changed twice per year (in January and July), based on the change in producer price index of 6 months period.

Figure 11: Beer excise increases since 2002 in Turkey



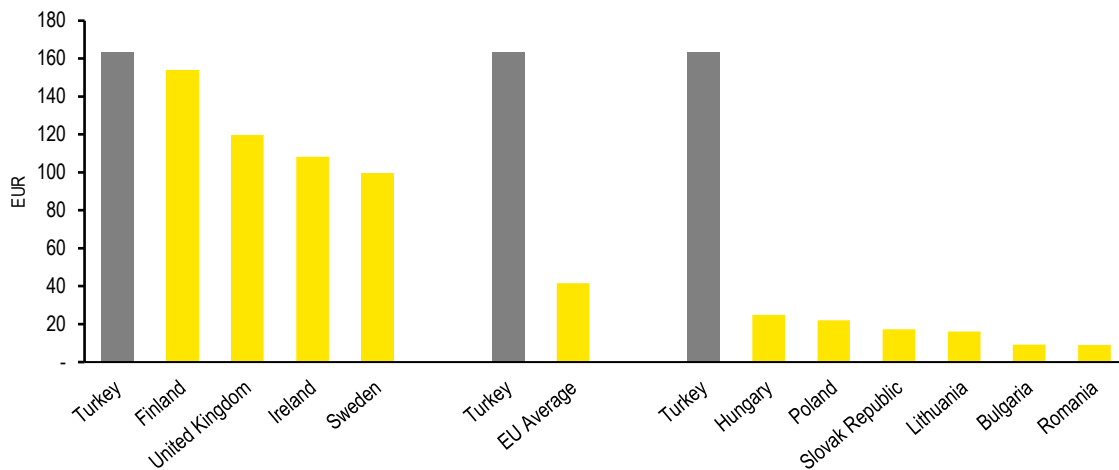
Source: Turkish Official Gazette and Excise, EY Analysis

4.3.2 Comparison with EU Member States

If the current excise duty on beer in Turkey is compared with excise duties in other countries, it appears that the Turkish excise rate is one of the highest among all of the comparison countries. This is evident if one observes the comparison to EU Member States with a comparable GDP PPS per capita, but also if compared to the countries with the highest excise rates in the EU.

Available data suggest that in Turkey, the excise tax imposed on beer is nearly 10 times higher than the average excise duties in countries with similar GDP PPS per capita, as Turkey, and about 4 times higher than the average of the European Union Member States.

Figure 12: Excise duties on beer in 2015 (€/hl produced) 12°Plato or 4.8% Abv



Source: EU GD Taxation and Customs Union, Turkish Official Gazette and Excise, EY Analysis

In Figure 13, below, we illustrate the absolute excise duty per hectolitre beer divided by the GDP per capita values for each country. It is clear that in 2015 Turkey has the lead with the highest excise duty / GDP per capita ratio on beer. Turkey is separated in the graph below from all the countries that are used in this study.

Figure 13: Excise duty per hectolitres and Excise duty / GDP per capita in 2015



Source: EU GD Taxation and Customs Union, Eurostat, Turkish Official Gazette and Excise, EY Analysis

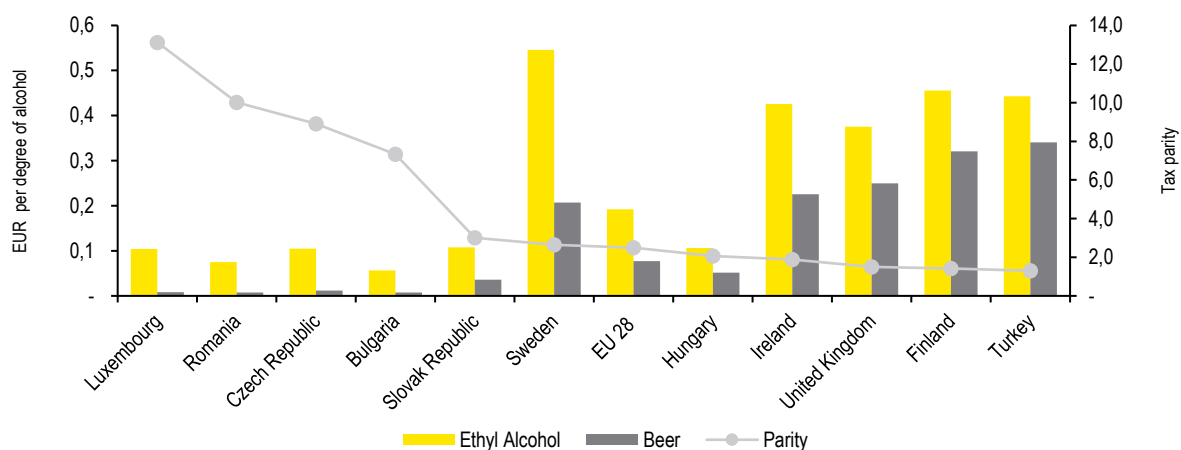
4.3.3 Comparisons with spirits

For spirits, the countries with the highest excises are Sweden, Finland, Ireland, Turkey and United Kingdom. It is also remarkable that Turkey has high excise duties for their alcoholic beverages compared with neighboring countries.

To provide further insight into actual and relative tax burden on beer and spirits, we calculated a tax parity to determine whether beer and spirits are taxed similarly in Turkey and in the comparison countries. If the tax burden is exactly the same for spirits and beer, the spirits/beer tax parity is calculated to be 1. Based on this analysis, in 2015, the spirits (vodka)/beer tax parity was 1.3 in Turkey. This would indicate that taxation on beer is quite close to that of spirits (vodka) in Turkey. In other words there are few or no distinctions made between the taxation on beer and spirits despite the fact that the alcohol content in the final products of spirits is significantly higher than beer.

In all of the comparison countries the spirits/beer tax parity is (much) higher than in Turkey. This means that in these countries the tax burden on beer is relatively much lower than on spirits, when the excises are compared on the basis of liters of pure alcohol. On average, in 2015 the spirits/beer tax parity for the EU was 2.5.

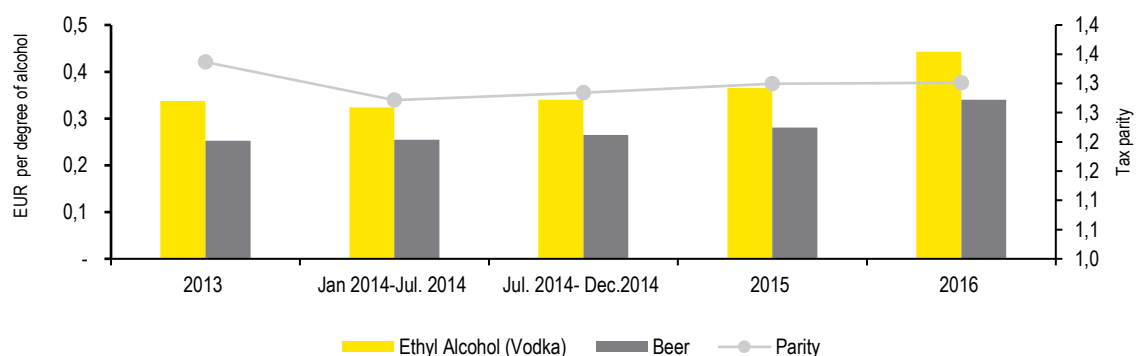
Figure 14: Tax parity spirits/beer in 2015



Source: EU GD Taxation and Customs Union, Turkish Official Gazette and Excise, EY Analysis

The relatively similar tax treatment of beer relative to spirits in Turkey is not new but appears to be long standing, as indicated in the figure below. This treatment implies an overburdening of beer, in terms of tax per liters of pure alcohol, relative to other beverages with much higher alcohol content.

Figure 15: Tax parity spirits (vodka)/beer in Turkey since 2013



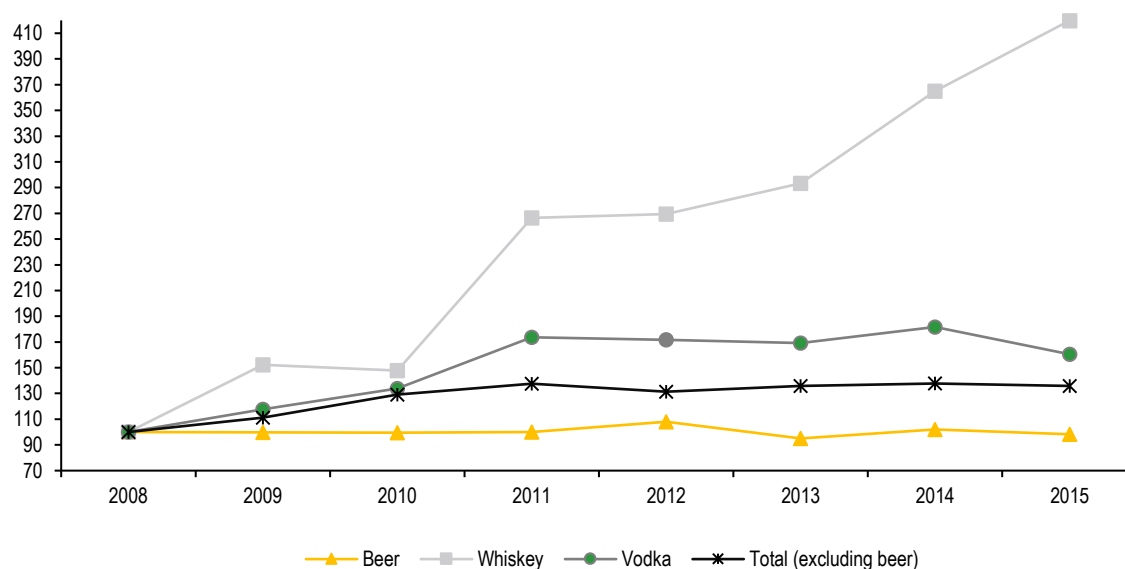
Source: Turkish Official Gazette and Excise (Special Consumption Tax) Law no: 4760, EY Analysis

4.3.4 Implications of maintaining a similar tax burden on beer relative to spirits

Maintaining an equivalent tax burden on beer relative to other alcoholic beverages, despite their differences alcohol content, may have played a critical role in affecting beer consumption in the country in recent years.

Available data on the historical evolution of supply from domestic and imported sources of different beverages indicate that the consumption of beer has, despite a peak in 2012, fallen by about -03% per year on average in compound terms since 2008. By contrast consumption of vodka and whiskey have exhibited approximately 7% and 23% growth per year on average, respectively, while total alcoholic beverages excluding beer have experienced similar growth of approximately 4,5% per year. While these changes in consumption may also reflect other changes in consumer preferences, the price effects from relative shifts in tax burden may also have had an impact.

Figure 16: Historical evolution of total supply (domestic market and imports) of beer, vodka, whiskey and total alcoholic beverages (excl. beer) (2008=100)

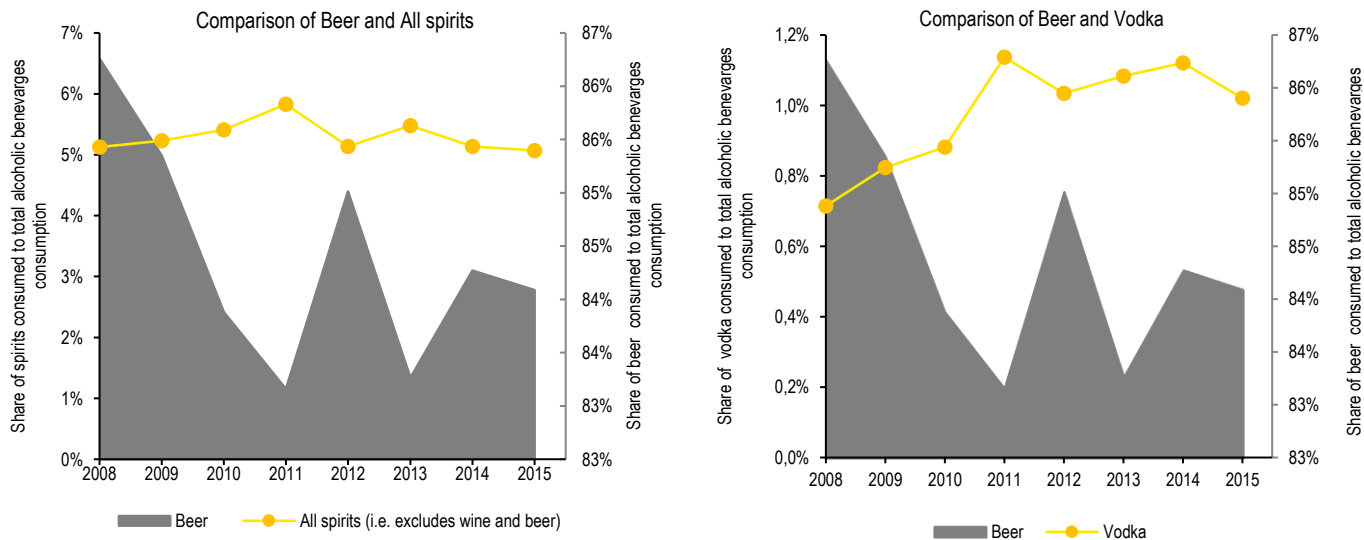


Source: TAPDK, EY Analysis

The above shifts in consumption patterns are also reflected when we observe changes in shares of different alcoholic beverages consumed to total consumption of alcoholic beverages.

The figures below illustrate this by plotting shares of beer and spirits litres consumption to the total. As can be seen while the share of beer has been declining historically since 2008, with the exception of the 2012 peak, the share of all other spirits has remained fairly stable overall with whiskey exhibiting very strong increase over the past seven years.

Figure 17: Shares of Beer and Spirits in litres consumed to total consumption of alcoholic beverages

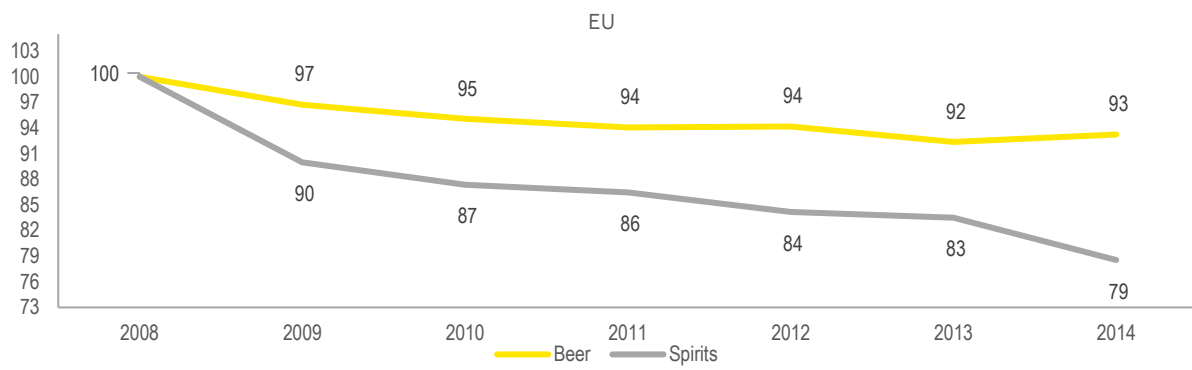
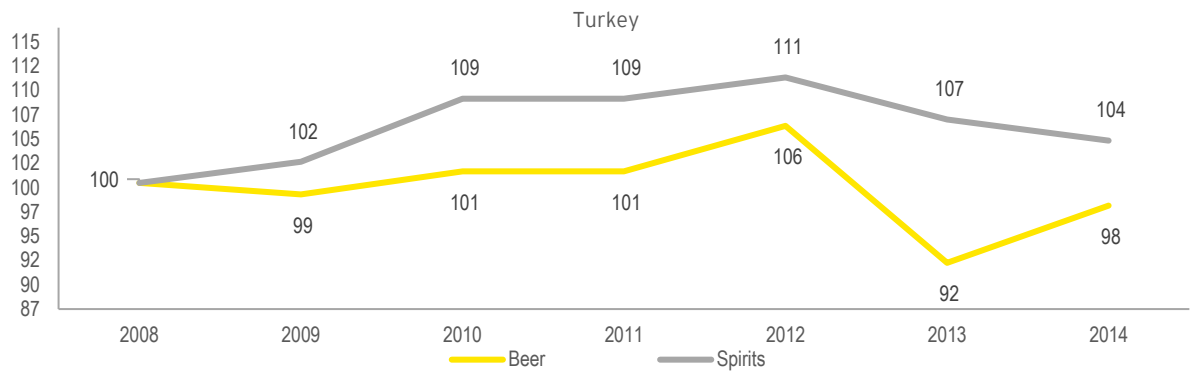


Source: TAPDK, EY Analysis

Finally, it is worth exploring how Turkey fares in relative beer and spirits consumption vis-a-vis the EU. In due recognition of the underlying differences in consumer preferences between Turkey and the EU average, the charts below help provide some further insight into the patterns of consumption. From the chart it is clear that in the EU as a whole consumption of both beer and spirits appears to follow a downward trend since 2008, yet this is considerably more pronounced in the case of spirits, as opposed to beer which follows a more stable, albeit contracting path. By contrast Turkey exhibits a stable and growing consumption pattern for spirits against a declining path for beer the latter characterized by abrupt fluctuations in recent years.

These observations would tend to suggest that while changes in consumer preferences may be at play, other exogenous factors have also been affecting evolving patterns of consumption. These factors could include, among other, changes in the regulatory and tax environment within which the production and sale of beer takes place.

Figure 18: Per capita consumption of beer and spirits in Turkey and EU (2008=100)



Source: WHO, EY Analysis

5. Value-added

5.1 Highlights

Table 8: Value-added generated by sector due to beer sales

Value added	(mln EUR) 2013	(mln EUR) 2014	(mln EUR) 2015
Beer sector	314	326	338
Supply sectors	178	134	155
On-trade channel	205	285	306
Off-trade channel	116	105	110
Total	814	850	908

Source: EY Analysis

5.2 Value-added by sector

The economic contribution of the beer industry in Turkey is best measured by the value added that it generates directly, as well as, through the supply, off-trade and on-trade sectors. Value added is the value of output less the value of intermediate consumption (purchased inputs of goods and services). It is a measure of the contribution to GDP made by an individual producer, industry or sector and reflects the primary incomes (wages, taxes and profits) generated by an economic activity.

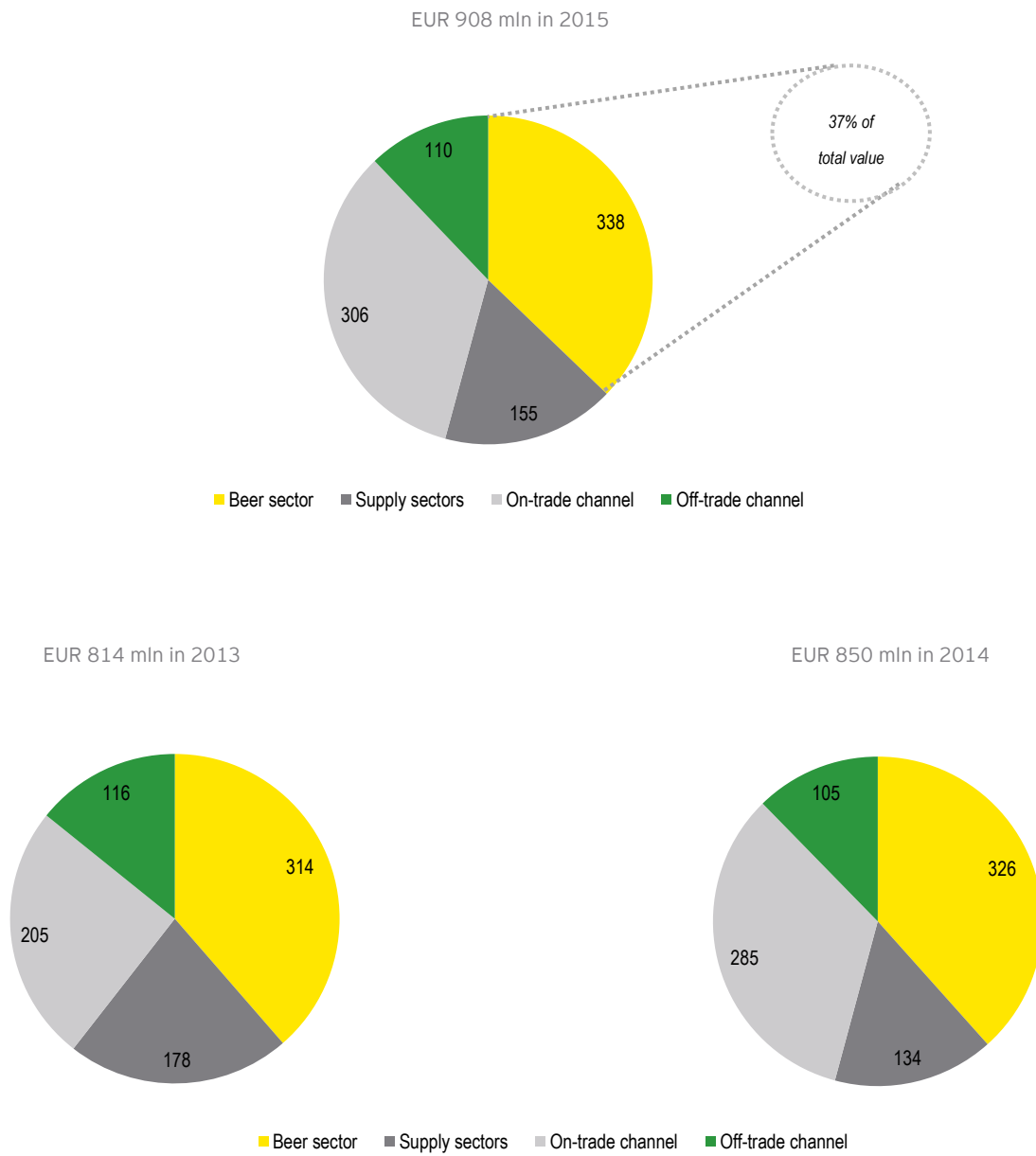
Starting with the value added generated by the beer sector alone, in 2015 this reached about EUR 338 million. Together with all other beer-related activities (supply sectors, on-trade and off-trade sectors) total value added reached EUR 908mln in the same year, almost 12% higher than the total value added contribution produced in 2013 (EUR. 814 million).



Of the EUR 908mln of total value added in 2015 approximately 46% was generated in the hospitality and retail sectors (on and off trade respectively), with direct and supply sectors following at 37% and 17% respectively. The relatively higher value added contribution generated by direct activities could, to an extent, be attributed to the stronger productivity of the employees in the brewing sector relative to that in the other sectors under analysis.

The value added arising from beer-related activities in Turkey is presented in the following charts:

Figure 19: Value added by beer sector



Source: EY Analysis

6. Employment

6.1 Highlights

Table 9: Number of persons employed due to beer production and sales			
Jobs	2013	2014	2015
Direct employment at brewing companies	2.438	2.394	2.397
Employment due to beer in the supply sector	15.161	11.448	13.813
Employment due to beer in the on-trade sector	34.227	50.521	52.305
Employment due to beer in retail sector	10.642	10.708	10.868
Total employment due to beer	62.468	75.072	79.383

Source: Questionnaires, EY Analysis

6.2 Total employment due to beer

The production and sale of beer in Turkey is estimated to support a total of approximately 79.400 jobs in 2015. These are jobs that are supported by beer related activities across the Turkish economy, namely not just the beer companies themselves, but also the supply sectors and the sectors engaged in the sale of beer (on-trade and off-trade).



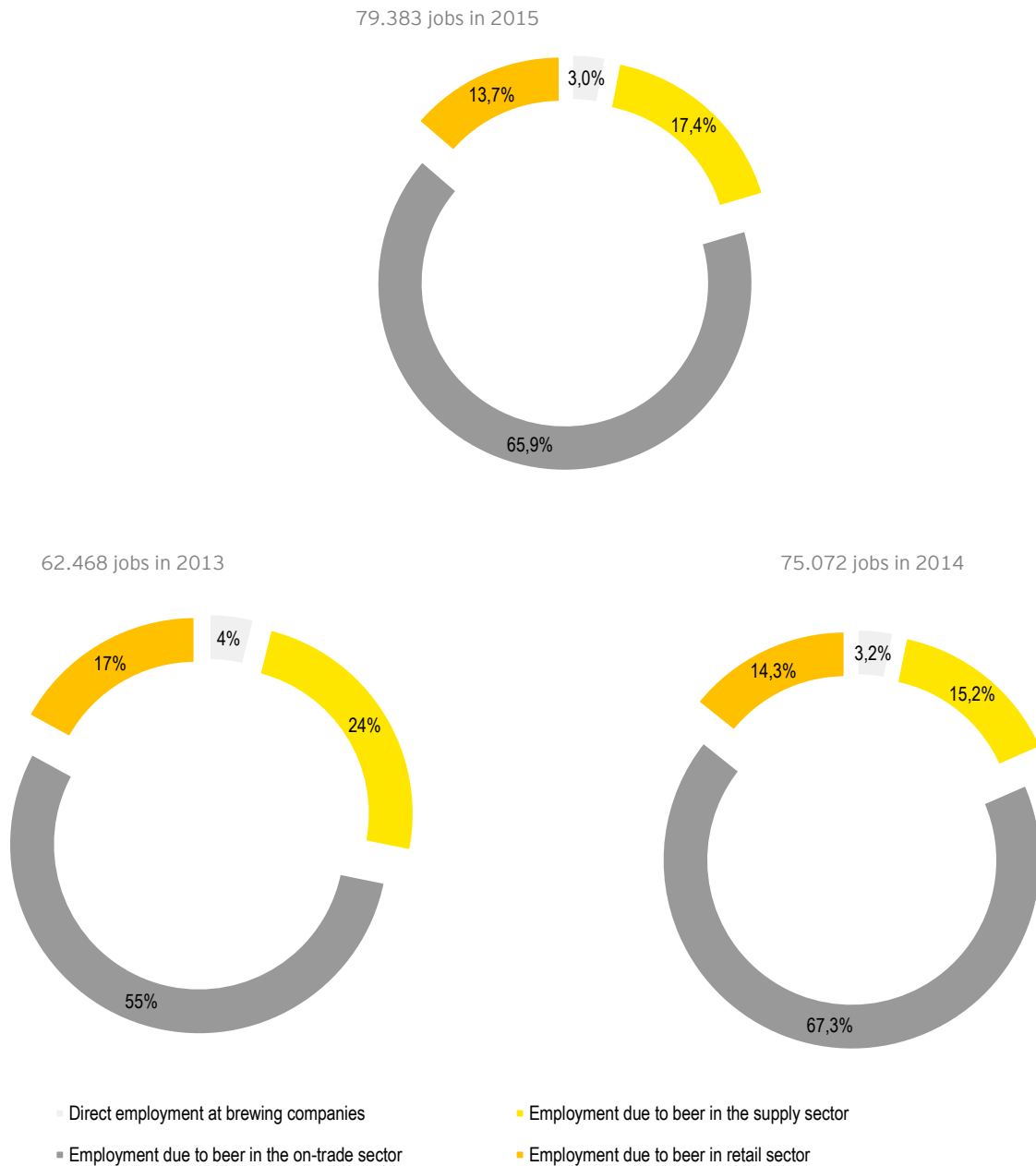
In 2015 almost 79.400 jobs were supported in Turkey from the production and sale of beer in the direct, upstream and downstream industries

In this context, of the total number of jobs supported by beer in 2015, about 2.400 jobs were in the beer sector directly, 13.800 jobs in the supply sectors, and almost 63.200 in the

hospitality and retail sectors (approx. 52.300 and 10.900 jobs in the on-trade and off trade sector, respectively). The total number of jobs supported by beer appears to have increased steadily since 2013 by almost 30%.

In the figures below, we present the employment per sector, arising from beer-related activities.

Figure 20: Total employment due to beer



Source: Questionnaires, EY Analysis

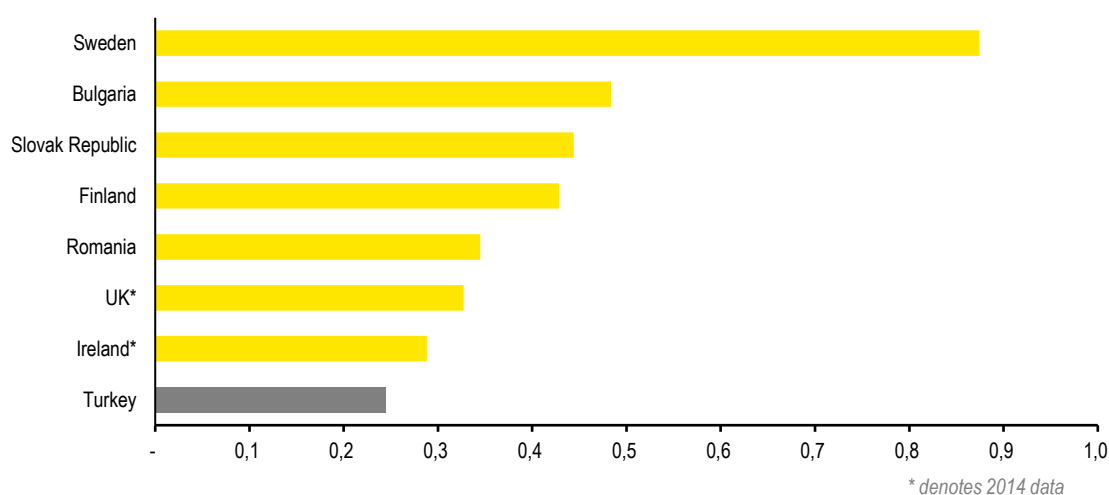
6.3 Direct employment

In terms of direct jobs supported by the beer sector, the number of full time equivalent positions has remained fairly stable over the past three years. On average, beer companies alone support about 2400 jobs, which is roughly comparable to other countries for which data is available from Brewers of Europe. Specifically for the countries under comparison in 2015, the number of persons directly employed by breweries was the lowest in Malta (500 jobs), and the highest in the Germany (26,861).

Looking at the direct jobs supported by every 1000 hectolitres produced, the two largest Turkish breweries create 0.24 jobs per 1000 hl. This figure is very low compared to Sweden where the breweries create 0.87 jobs per 1000 hl. Nevertheless, this may also imply that labour productivity in the Turkish brewing industry is much higher than in Sweden. Equally however, in Bulgaria where breweries employ roughly the same amount of personnel as in Turkey, they create more direct jobs

per 1000 hl of beer (about 0.48 jobs). Moreover in Slovakia, where breweries account for about 1400 direct jobs, they also create more direct jobs per 1000 hl of beer (0.44 jobs).

Figure 21: Direct jobs per 1000 hl produced by country in 2015



Source: *Brewers of Europe* and calculations by EY

6.4 Backward Impact

Jobs	2013	2014	2015
Agricultural products	10.910	7.617	10.133
Utilities	156	150	138
Packaging and bottling industry	2.712	2.655	2.464
Equipment, manufacturing, and other industrial activities	223	147	234
Transport and storage	163	233	242
Media, marketing, and communications	967	612	561
Other services	30	34	40
Total employment due to beer	15.161	11.448	13.813

Source: EY Analysis

Overall the brewing industry is characterised by a deep supply chain permeating a range of sectors across the Turkish economy. Production of beer by breweries relies on intermediate purchases that range from barley, hops and water to bottling and packaging, energy, transport and other industrial products and services. The economic activity generated by the demand triggered by beer production has a significant backward impact in terms of employment.

In 2015 almost 10.150 jobs were supported in the Turkish agriculture sector from the beer production and sale

The backward employment effect in upstream industries in 2015 amounted to approximately 13.800 (about 21% higher than in 2014). In the figures below we illustrate how these jobs break down by different supply sectors for the three years under analysis. As can be seen, the majority of the additional jobs are generated in the agricultural sector and in the packaging and bottling sectors. The backward impact on employment in 2015 stands at about 10.133 jobs in the agricultural sector (33% more jobs compared to 2014), 2.464 jobs in the packaging and bottling industry (7,2% less than in 2014), 561 jobs in the media, marketing and communications (8,3% decrease compared to 2014), and 655 jobs in the other industries illustrated in the table above. In Annex VII we provide for further detail on the employment generated in the supply sector due to the purchases of the breweries.

Figure 22: Backward linkages jobs in 2015 in Turkey

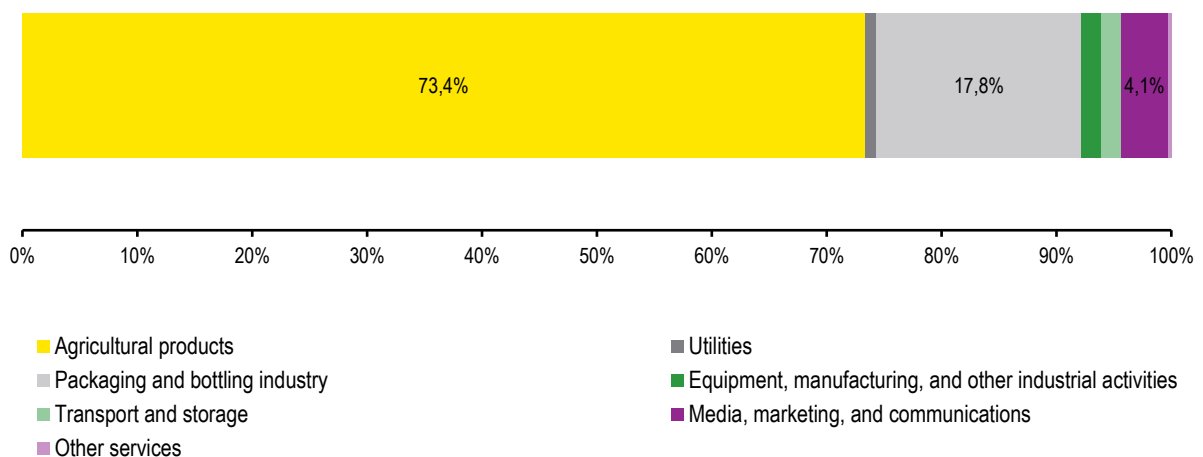


Figure 23: Backward linkages jobs in 2014 in Turkey

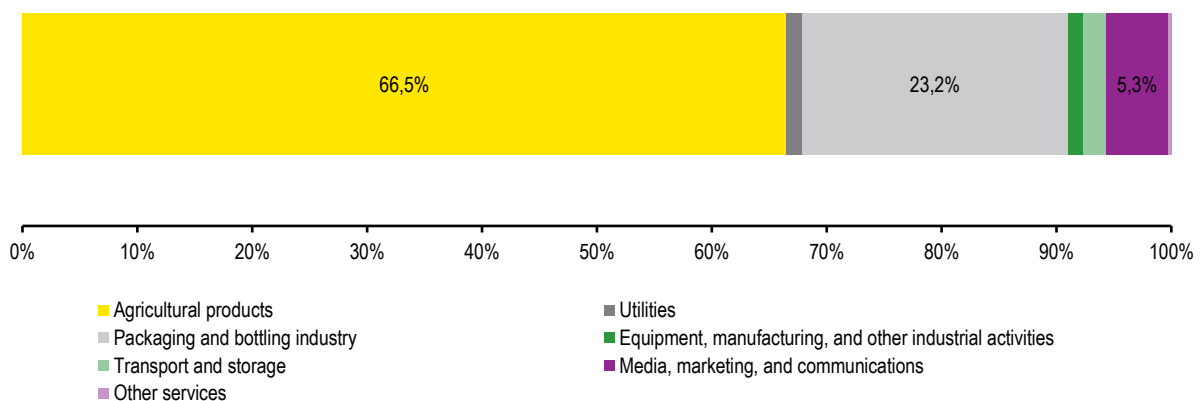
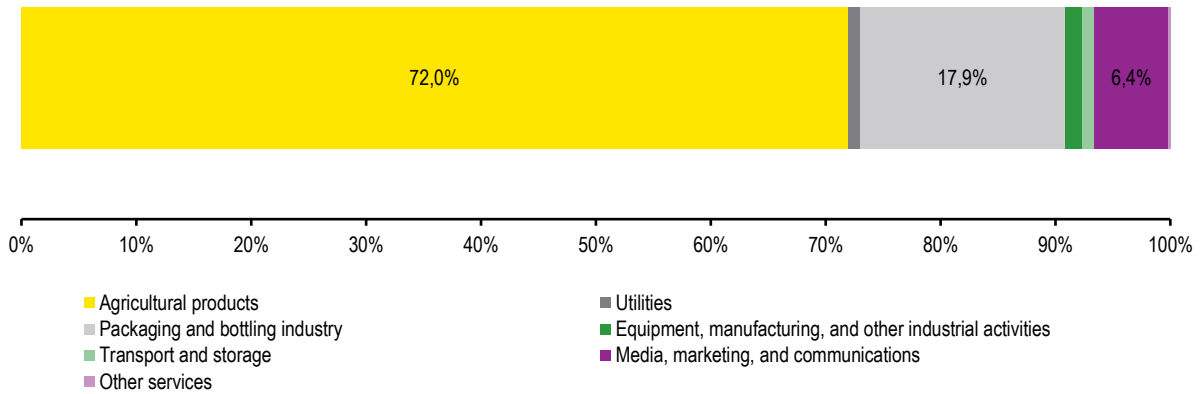


Figure 24: Backward linkages jobs in 2013 in Turkey

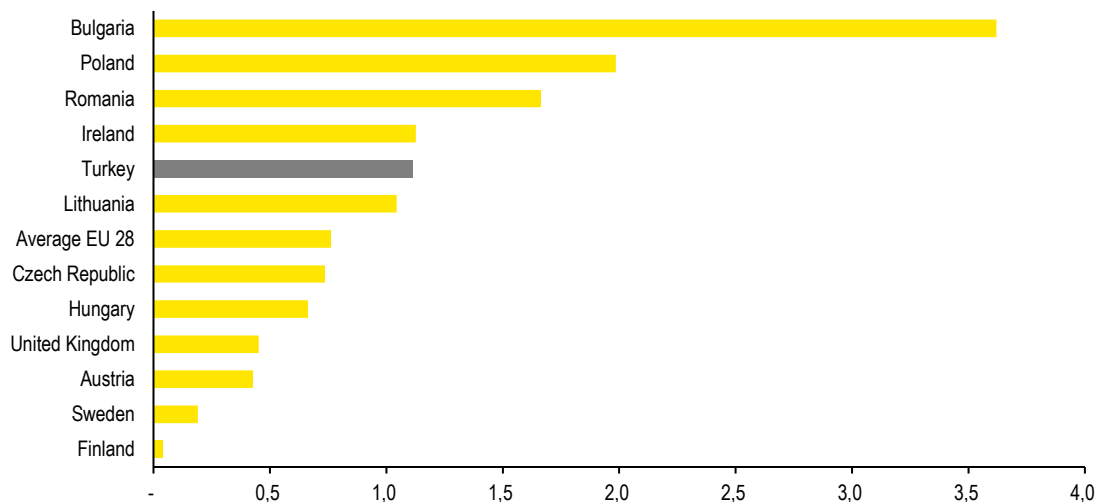


Source: Questionnaires, EY Analysis

The figure below provides a comparison of jobs generated in supply sectors between Turkey and EU countries for 2014, which is the latest year for which comparative data exist. To facilitate the comparative analysis jobs are presented per 1000 hl beer produced.

As can be seen compared to our sample, Turkey is an average country with regard to creating backward linkages jobs due beer-related activities. In Turkey, the production of 1000 hl of beer leads to 1.12 indirect jobs, compared to 1.99 jobs in Poland. This is still higher than countries with long tradition in beer production such as the UK and Sweden.

Figure 25: Backward linkages jobs per 1000 hl beer produced in 2014 by country



Sources: Data from Brewers of Europe, EY Analysis

6.5 Forward Impact

The impact of the brewing sector on employment goes beyond the direct and supply chain effects, as the sales of beer in supermarkets and retail outlets, as well as, bars and other drinking establishments supports a considerable number of jobs within the on-trade and off-trade sectors respectively.

6.5.1 On-trade (hospitality) sector

In 2015, the sale of beer in bars, restaurants and other drinking establishments supported an estimated 52.300 jobs out of the total number of jobs in the on-trade sector. The remaining jobs could

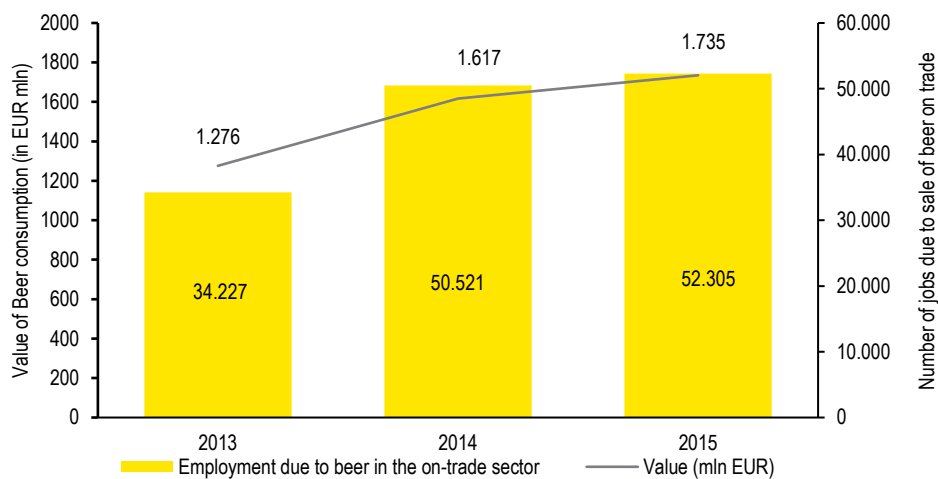


be attributed to the sale of other products, such as food, wine, spirits, coffee, and tea.

This represents a considerable increase since 2013, when the number of jobs attributed to the sales of beer in that year amounted to about 34.230 jobs.

The number followed the relative recovery in beer consumption since the low levels of 2013 and the relative minor shift in consumption in the hospitality relative to the retail sector.

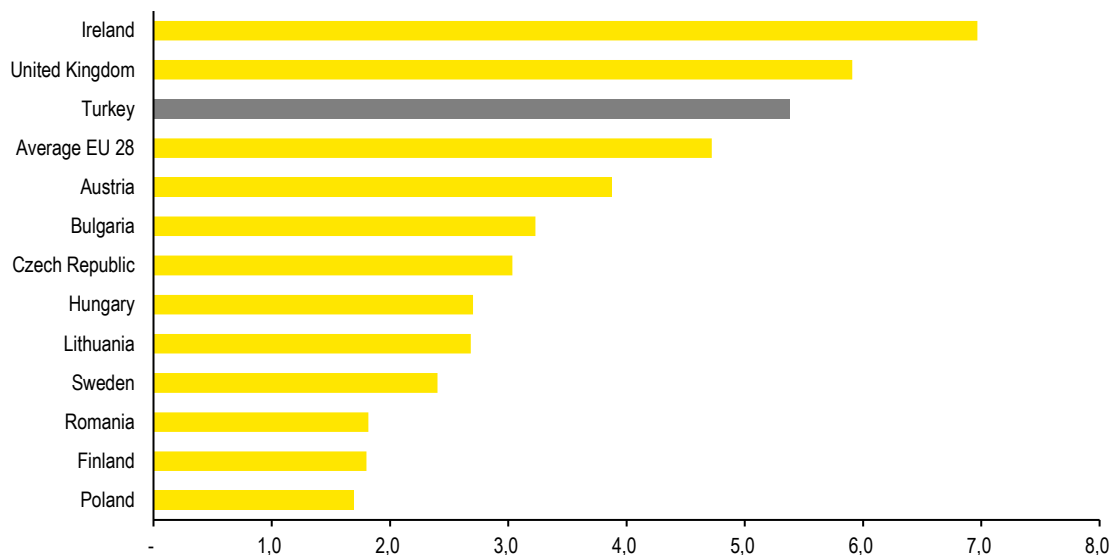
Figure 26: Number of persons employed due to beer production and sales



Source: Questionnaires, EY Analysis

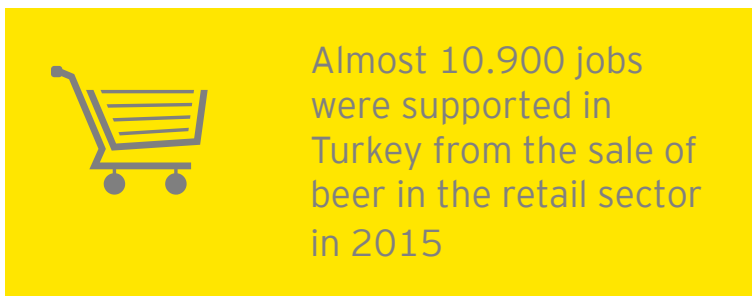
As illustrated in the figure bellow, in Ireland, every 1000 hl of beer that is sold on-trade leads to nearly 7 jobs generated in the on-trade sector as compared with 5 jobs in Turkey. Among the comparison countries, the lowest number of jobs in the on-trade sector is generated in Poland.

Figure 27: Jobs in on-trade sector per 1000 hl beer sold in 2014 by country



Sources: Data from Brewers of Europe, EY Analysis

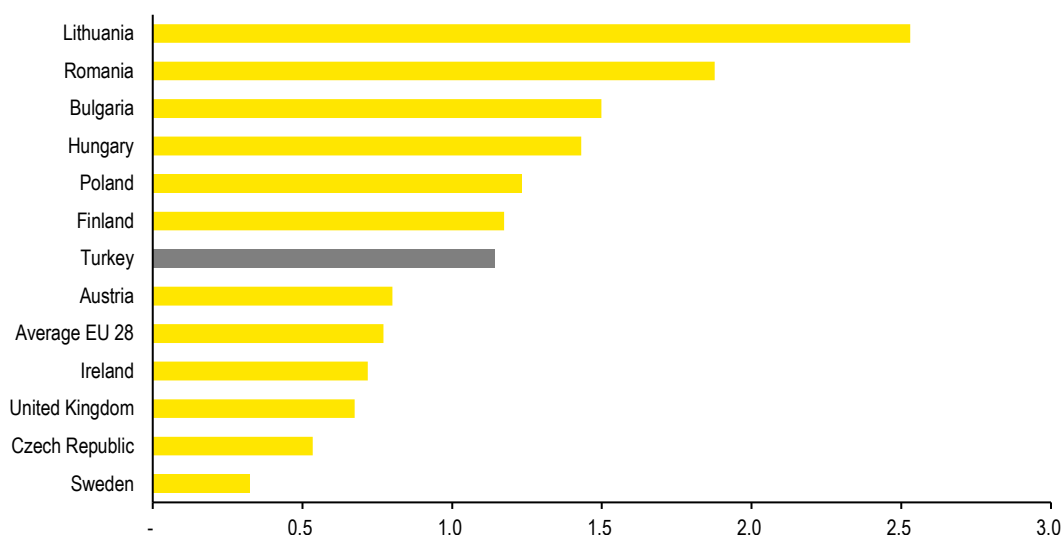
6.5.2 Off-trade (retail) sector



In 2015, 10.868 jobs in the Turkish retail sector were attributed to the sales of beer, which translates into an increase of about 2% compared to the figure of 2013. We can observe that the rise in retail jobs over the last two years is significantly smaller than the respective surge in the hospitality sector. This would indicate a shift in consumption patterns towards drinking in the hospitality sector.

Every 1,000 litres of beer sold leads to 1.14 jobs in the Turkish retail sector. This figure is high compared to other countries. In the Czech Republic 0.5 jobs result from every 1,000 litres that are sold in the retail sector.

Figure 28: Jobs in retail per 1000 hl beer sold in 2014 by country



Sources: Data from *Brewers of Europe, EY Analysis*

Nevertheless, the absolute amount of employment created in the retail sector arising from beer sales is rather high in Turkey. In 2014, which is the latest year for which comparable data exist, employment in the Turkish retail sector due to beer sales was about 10.700, that is well above Finland, Bulgaria and Hungary.

Table 11: Number of persons employed in the retail due to beer sales in 2014 by country	
Country	Employment in the retail sector due to beer sales 2014
Sweden	1.400
Ireland	3.200
Finland	4.900
Bulgaria	7.900
Hungary	8.300
Turkey	10.700
Romania	27.900
United Kingdom	29.500
Poland	46.400

Sources: Data from *Brewers of Europe, EY Analysis, numbers are rounded*

7. Purchases Made By Breweries

7.1 Highlights

Highlights of purchases made by breweries in Turkey

- ▶ In 2015 the production of beer by Turkish breweries triggered purchases of a total EUR 405 million, up by about EUR 15 million since 2014
- ▶ The majority of intermediate purchases were placed on agriculture produce (barley and hops) as well as bottling and packaging, media and marketing.
- ▶ The majority of the purchases made by Turkish breweries are made in their own country

Table 12: Purchases made by breweries by sector (million Euros)

	2013	2014	2015
Agricultural products	122	81	95
Utilities	40	35	34
Packaging and bottling industry	202	195	198
Equipment and manufacturing	21	21	21
Transport and storage	12	16	17
Media, marketing and communications	72	41	39
Other services	1	1	1
Total	470	389	405

Source: Questionnaires, EY Analysis

7.2 Purchase of goods and services

Turkish beer companies generate considerable demand in upstream industries through their purchases of goods and services from suppliers across different sectors of the Turkish economy. In 2014, their total expenditure on goods and services for the production and selling of beer amounted to €389 million. In 2015, they spent €405 million on goods and services.

Based on information collected, in 2015 on average 89% of the purchases made by the brewing companies was spent inside Turkey, which in turn has generated a significant domestic stimulus for the Turkish economy (€339 million in 2015 and €325 million in 2014). The now on impact of this was rather substantial. In Annex VII we provide more details about the economic impact on suppliers due to beer.

Table 13: Impact on suppliers in 2015			
Sectors	Total amount of purchases (mln EUR)	Stimulus for Turkey	
		% spent in Turkey	(mln EUR)
Agriculture	95	67%	64
Utilities	34	100%	34
Packaging and bottling industry	198	85%	169
Equipment and manufacturing	21	74%	15
Transport and storage	17	100%	17
Media, marketing and communication	39	100%	39
Other services	0,9	100%	0,9
Total	405	-	339

Source: Questionnaires, EY Analysis

Table 14: Impact on suppliers in 2014			
Sectors	Total amount of purchases (mln EUR)	Stimulus for Turkey	
		% spent in Turkey	(mln EUR)
Agriculture	81	59%	48
Utilities	35	100%	35
Packaging and bottling industry	195	89%	174
Equipment and manufacturing	21	51%	10
Transport and storage	16	100%	16
Media, marketing and communication	41	100%	41
Other services	0,7	100%	0,7
Total	389	-	325

Source: Questionnaires, EY Analysis

Table 15: Impact on suppliers in 2013			
Sectors	Total amount of purchases (mln EUR)	Stimulus for Turkey	
		% spent in Turkey	(mln EUR)
Agriculture	122	59%	72
Utilities	40	100%	40
Packaging and bottling industry	202	93%	188
Equipment and manufacturing	21	71%	15
Transport and storage	12	100%	12
Media, marketing and communication	72	100%	72
Other services	0,7	100%	0,7
Total	470	-	399

Source: Questionnaires, EY Analysis

7.3 Impact on the agricultural sector

By structure and organisation beer production can have a considerable impact on the agricultural sector and related raw materials. Among other, the main agriculture and other raw material sectors serving the beer industry are malt (a product of high-quality barley), hops, yeast and water. Of all agricultural inputs, malting barley is the most important ingredient of beer. More than 70% of the barley intended for industrial use, is used by the beer sector.

In value terms, raw materials and agricultural ingredients represent about 23% of overall expenditure made by the Turkish beer producers. Our analysis suggests that in 2015, the value of the agricultural expenditures amounted to €95 million, of which €64 million was spent in Turkey.

Overall in 2015, beer production purchased nearly of 135.00 tons of barley and 110.000 tons of malt. Compared to previous years domestic sourcing of agricultural products increased significantly from 59% to 67%. This appears to reverse a fairly negative trend that was observed in up to 2014, whereby domestic sourcing declined gradually. It could suggest that Turkish farmers in are more and more able to penetrate the beer industry sector providing good quality barley for production.

Agricultural product	Volume used by beer sector (ton)	Total production in Turkey
Barley	133.656	8,0 mln tons
Malt	108.793	N/A
Hops	490	1.869 tons
Sugar	5.126	2,6 mln tons
Yeast	219	N/A
Rice	16.599	0,92 mln tons
Water (in hl)	29.139.645 hl	N/A

Sources: Questionnaires, EY Analysis, TurkStat, USDA Foreign Agricultural Service

8. Regulations

In 2013, the Turkish government has implemented new regulations on the retailing and marketing of beer.

Increasing excise rate on beer

- ▶ In Turkey, the excise rate on beer has been increased eleven times, generally higher than the inflation rates, in the last ten years up until January 2013. Since then, the excise duties of alcoholic beverages and tobacco products have been changed biannually (January, July), based on the change in the producer price index of 6 months period. This means that the excise duty continues to increase, but now the increases will be systematic and in line with inflation.
- ▶ Between January 2013 and July 2016, the excise rate on beer has been kept constant as 63% however the minimum fixed excise has been 68.6% higher than in the beginning of 2013. The most recent excise tax increases made Turkey one of the highest excise taxed countries on beer in the continent of Europe.

Regulations are in full effect

On 18 September 2013 a new set of regulations have been published and issued. These new regulations affect the principles and procedures concerning the sale and display of alcoholic beverages in Turkey. The main components of these new regulations are mentioned below.

- ▶ Sales of alcoholic beverages are forbidden between 22.00 - 06.00, effective as of 9 September 2013.
- ▶ Alcoholic beverages may no longer be sold at student residences, sports clubs, all types of educational institutions, coffeehouses, coffee shops, pastry shops, bezique and bridge halls and businesses operating at gas stations.
- ▶ No new premises selling alcoholic beverages may be opened within 100 meters from formal educational institutions, private teaching institutions, dormitories, and sanctuaries. Existing premises in that radius may stay open, but can only transfer their business to relatives in first and second degree.
- ▶ Any kind of advertisement and promotions of alcoholic beverages targeting consumers are prohibited, including product placement. Furthermore, producers are not allowed to operate a website with a domain/sub-domain name which includes name or brand of any alcoholic beverage for the online advertisement and promotion of these products to consumers.
- ▶ Also advertising inside shops is not allowed. No words, drawings, pictures, and letters containing brand, logo, emblem or marks of alcoholic beverages shall be displayed inside or outside of shops, on windows, signs, sales units, coolers, transportation vehicles. Also, alcoholic beverages are not allowed to be seen outside the shop.
- ▶ Although the grace periods for the advertisement regulations varied, the grace periods for all prohibitions except for prohibition of coolers with brand logos, which was 2016, has ended in 2014. As of our report date, the regulation is fully in effect.

Annex I: Methodology and Scope

The purpose of this study was to estimate the economic impact of the brewing sector in Turkey. In conducting the analysis emphasis was placed in maximizing the scope of available data and thereby maximising reliability of estimates. A further key concern was to ensure consistency with earlier studies in terms of methods employed, in order to ensure comparability across years.

Although the brewing sector is international in scope and many brewing companies are organizations operating as multinationals, the analysis was carried out at country level. In this manner, the impact on the Turkish economy could be isolated and measured. The analysis was carried out for years 2013, 2014 and 2015.

The calculations closely followed those in earlier reports. An economic impact model was constructed with view to estimating impacts across three dimensions:

- ▶ Direct impact - This represents the impact generated in the businesses brewing beer in Turkey, that is the companies engaged in the production of beer in the country
- ▶ Backward impact¹ - This represents the upstream impacts in the supplying sectors of the brewing industry. To be able to produce beer, breweries need to purchase a highly diverse range of goods and services. To mention just a selection: barley malt, hops, water and many types of packaging materials such as glass and aluminium. Breweries also hire engineers, marketers, communications agencies and many more services. In this study, six supply sectors are distinguished: agriculture (raw materials); utilities; packaging and bottling industry; equipment, manufacturing and other industrial activities; transport and storage; and media, marketing and communication.
- ▶ Forward impact² - This represents the downstream impacts in the businesses selling beer, particularly the retail outlets (also referred to as off-trade) and hospitality sector (also referred to as on-trade).

The above-mentioned effects have been measured in three areas (employment, value-added and government revenues). It is important to stress that these are not additional effects, but rather three ways in which the same effects can be looked at. Together this results in nine dimensions:

¹ We note that backward (or upstream) impacts were referred to as "indirect" impacts in previous versions of this study. Nevertheless since in the literature, indirect impacts tend to account for both the upstream and downstream impacts we follow the approach taken by the latest Brewers of Europe Study and adopt the more precise term hereto reflect only the upstream sectors.

² We note that forward (or downstream) impacts were referred to as "induced" impacts in previous versions of this study. Nevertheless since in the literature induced impacts account for the activity resulting from the factors of production in sectors where there is a direct and indirect impact spending of the income derived from that activity in the wider economy (a form of economic impact not captured here), we adopt the more precise term of forward impacts to reflect only the downstream sectors.

Figure 29: Dimensions for measuring the economic impact

	Direct impact	Backward impact	Forward impact
Employment	Total number of jobs in the brewing sector	Total number of jobs in supply sectors resulting from the production and sale of beer	Total number of jobs in the hospitality and retail sector resulting from the sale of beer
Value-added	Value-added by brewing companies	Value-added in supply sectors resulting from the production and sale of beer	Value-added in the hospitality and retail sector resulting from the sale of beer
Government Revenues	Excise revenues resulting from the production and sale of beer, income tax and social contributions from employers and employees in the brewing industry and corporate and other taxes	Income tax and social contributions from employers and employees in supply sectors	VAT revenues, income tax and social contributions from employers and employees in the hospitality and retail sector resulting from the sale of beer

Annex II: Data Sources

Data for the conduct of our analysis we derived from a multiple of sources.

Primary data on the beer sector were based on information collected through detailed questionnaires to:

- ▶ The Beer and Malt Producers' Association of Turkey (BMÜD): The elements of the questionnaire covered key figures of the beer sector, including production and consumption (in hectolitres), total number of breweries, consumer prices (per litre) in the on-trade and off-trade sectors, distribution margins of production sold on-trade and off-trade, the most important developments and threats in the beer sector, and the alcohol and excise policy in Turkey.
- ▶ The largest beer producers in Turkey Efes and Tuborg: The two producers also completed a detailed questionnaire. The elements of this questionnaire were key figures of the company including production and consumption (in hectolitres), imports and exports, employment, consumer prices (per litre) in the on-trade and off-trade sectors, sales in the on-trade and off-trade sectors, taxes paid, purchases of goods and services for the production of beer (e.g. raw materials, utilities, packaging and bottling products etc.)

Additional complementary data on the beer and alcohol sector were also sourced from the Tobacco and Alcohol Market Regulatory Authority of Turkey (TAPDK). TAPDK provided key figures concerning production, export and import data from beer in Turkey.

Primary data on the sectors that form part of the backward (upstream) and forward (downstream) impacts of the beer industry were obtained from Turkish Statistical Institute (Structural Business Statistics). These include turnover, value-added, employment, and personnel costs per person employed in the respective supplying sectors of the beer industry and in the on and off-trade trades. The latest available year for which such structural business statistics is available by the Turkish Statistical Institute is 2014. For the year 2015 we obtained updated data by applying the overall change in the Consumer Price Index to the latest available year (2014).

For sector data NACE-codes Rev. 2 were employed as provided by the Turkish Statistical Institute. In assigning the appropriate NACE Rev. 2 sector, we followed the methodology applied by the latest Brewers of Europe impact study in order to map the sectors outlined in the questionnaires to individual breweries: Agricultural products and raw material; Utilities; Packaging and bottling; Transportation and storage; Equipment and other; Media, marketing and communication; Other goods and services; the On-Trade; and the Off-Trade.

Previous studies employed sector data at NACE Rev. 1.1. nomenclature. To maximise consistency, we placed emphasis to ensure that the sectors used represented the most direct translation possible from the sectors used in earlier studies. One key exception was the case of on-trade sector, where we used the more specific sector definition referring to beverage serving activities in place of the higher-level sector representing hotels and restaurants as a whole. This approach is consistent with the methodology employed in other studies in the literature (e.g. Brewers of Europe latest impact study for the EU countries).

General sector (as per questionnaire)	Sector in NACE Rev. 2 Nomenclature
Agriculture	A: Agriculture ³
Utilities	DE: Electricity, gas, steam and air conditioning supply Water supply, sewerage, waste management and remediation activities
Packaging	C: Manufacturing
Equipment	C: Manufacturing
Transportation	H: Transportation and storage
Media and marketing	LNM: Real estate activities Professional, scientific and technical activities Administrative and support service activities
On-trade sale	I56.3: Beverage serving activities
Off-trade sale	G47.25: Retail sale of beverages in specialised stores

Additional data on taxation across the economy were obtained from the Turkish Official Gazette and Excise. These included VAT, implicit tax rates on labour income, and national insurance contributions, as well as excise duties. For the EU countries taxation data were obtained from the EU GD Taxation and Customs Union,

³ We note that agriculture is not contained in the national structural business statistics. Information for this sector was therefore derived from a combination of sources including former reports, specific agricultural statistics and labour compensation derived from TurkStat and the USDA Foreign Agricultural Service

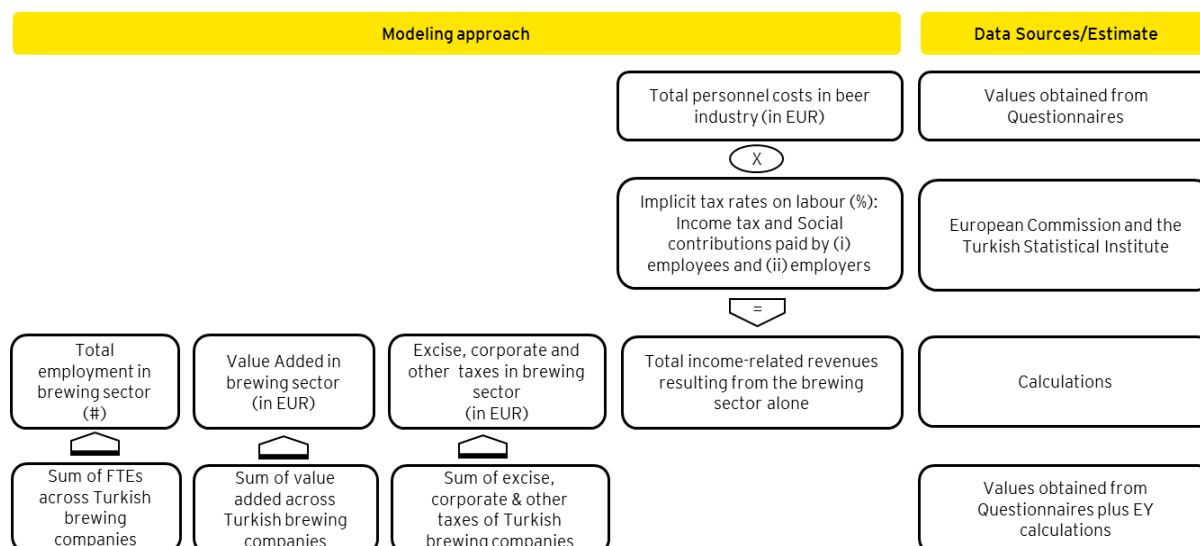
Annex III: Calculations and Variables

Direct impact

This reflects the impact generated in the businesses brewing beer in Turkey that is the companies engaged in the production of beer in the country.

Direct impact is estimated based on information collected through questionnaires and is measured in terms of employment, value added and taxes generated. Value added refers to the difference between production value and the value of purchased inputs (goods and services). In economic terminology value-added is also defined as the reward for all production factors (mainly labour, capital, entrepreneurship).

Figure 30: Direct employment, value added and tax revenue effects



Bellow we illustrate how the impact in terms of backward and forward linkages is estimated focusing on:

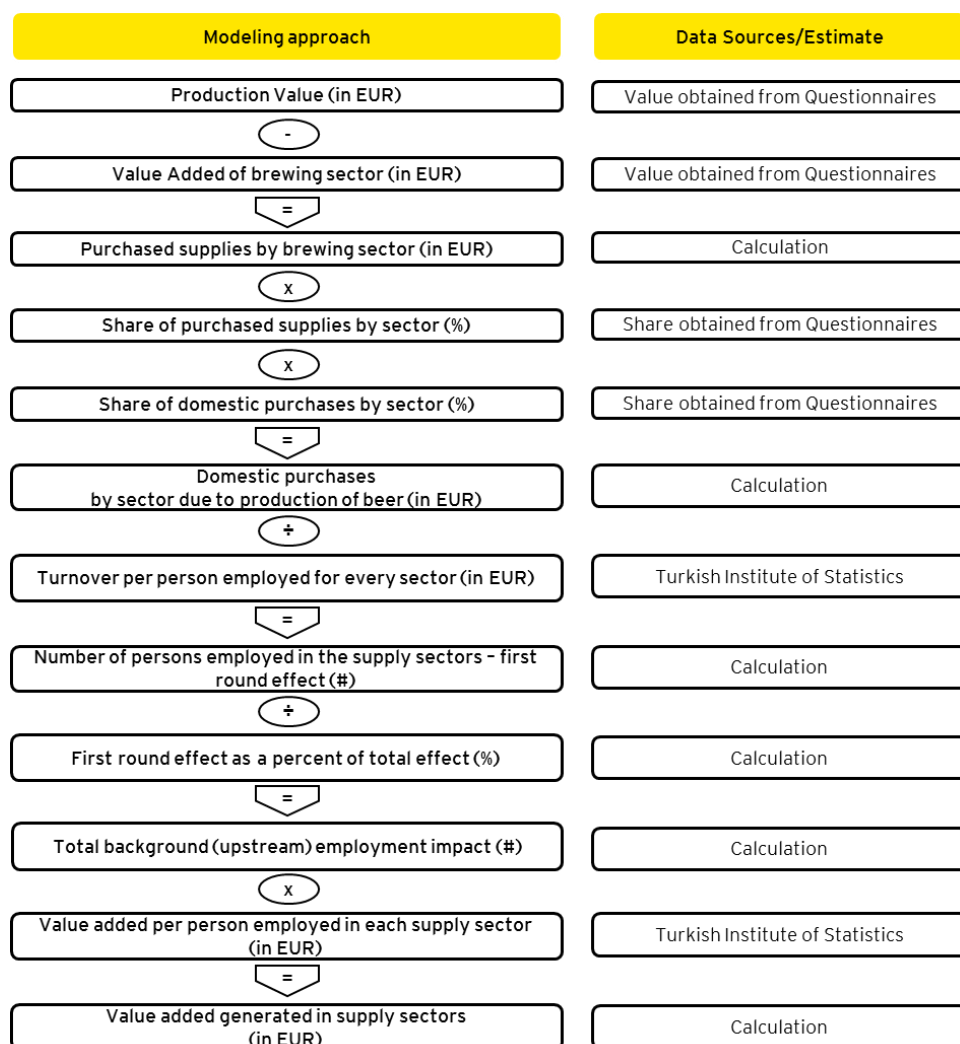
- ▶ Backward impacts on employment and value added;
- ▶ Forward impacts on employment and value added;
- ▶ Backward and forward impacts on government revenues.

Backward impact

Backward impacts concern the employment and value added generated in the supply sectors due to the production of beer.

The starting point of the estimates on backward impacts is the impulse in supply sectors resulting from purchases made by the brewing sector. This reflects the brewing sector's intermediate consumption. Blended with macroeconomic data at sector level from the Turkish Institute of Statistics information on intermediate consumption allows us to estimate employment and value added impacts across the brewing sector's supply chain.

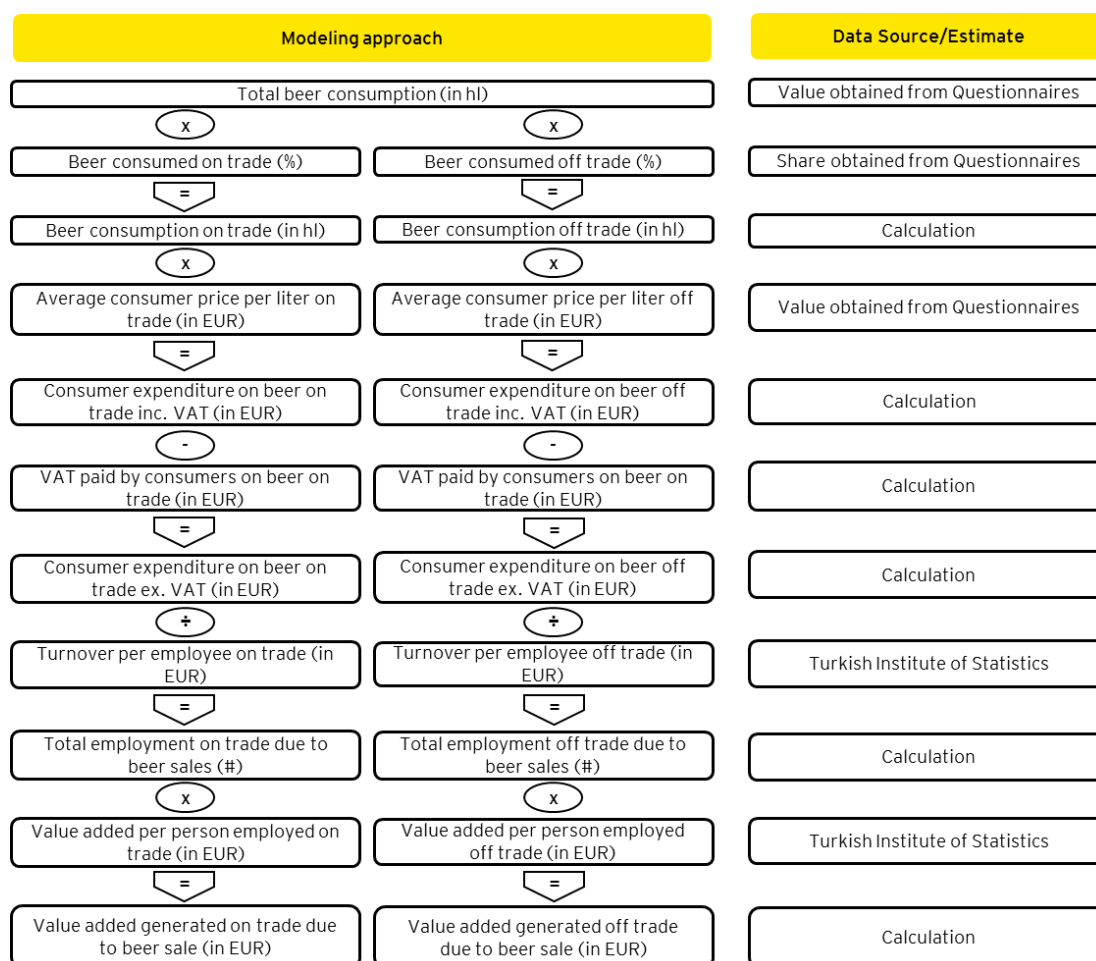
Figure 31: Backward employment and value added effects



Forward impact

Forward linkages impact measure downstream impacts in the businesses selling beer, particularly the retail outlets (off-trade) and hospitality sector (on-trade). The starting point of our analysis here is beer consumption in the on-trade and off trade sectors, which again is blended with macroeconomic data for the respective sectors from the Turkish Institute of Statistics to estimate employment and value added impacts in these sectors.

Figure 32: Forward employment and value added effects



Direct, backward and forward impacts on government revenues

The government revenues due to the brewing industry consist of five segments:

- ▶ excise revenues;
- ▶ VAT revenues;
- ▶ income-related revenues;
- ▶ corporate taxes;
- ▶ other taxes.

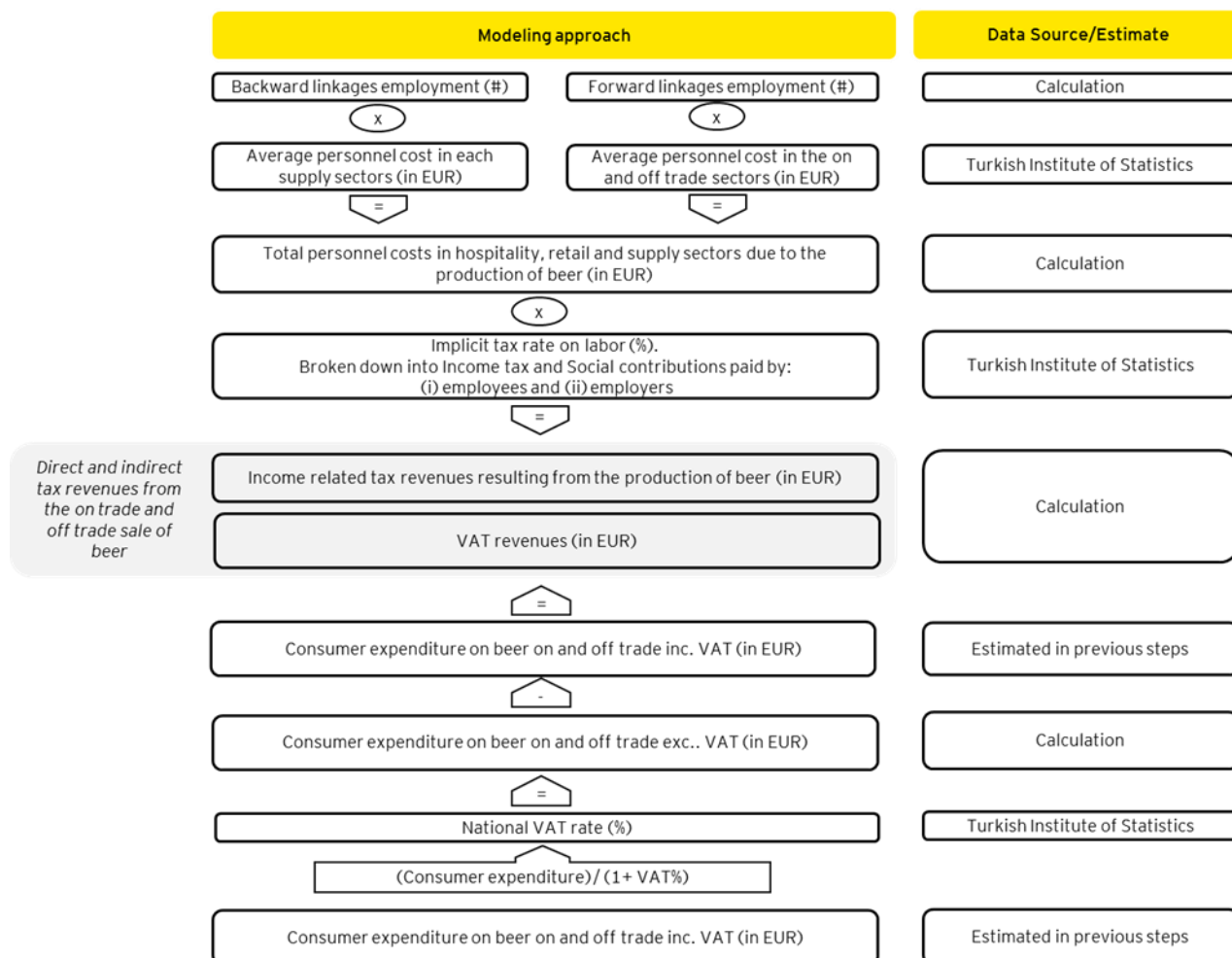
Data on excise revenues is obtained from the questionnaires, the European Commission, and statistics from The Brewers of Europe. VAT revenues resulting from the sale of beer are calculated by multiplying the total consumer spending on beer (on-trade and off-trade) with the applicable VAT rate in a particular country.

Income-related revenues have been estimated by multiplying personnel costs with implicit tax rates. The personnel costs in the brewing industry were obtained from Eurostat and the Turkish Statistical

Institute. Personnel costs in supply sectors, hospitality and retail were calculated by multiplying backward and forward employment by the mean personnel costs per person employed.

Implicit tax rates on labour were obtained from statistics from the European Commission and the Turkish Statistical Institute. The implicit tax rate is the percentage of personnel costs which consists of taxes and social contributions. It consists of three parts: mean ratio of 1) income tax, 2) social contributions paid by employees and 3) social contributions paid by employers. Using implicit tax rates made it possible to report separately on income tax revenues and social contributions.

Figure 33: Model for measuring government revenues



Annex IV: Exchange Rates and Inflation Rates

Since most data sources used for the study apply to the years 2013, 2014 and 2015, the exchange rates of these three years have been used for the majority of data calculations.

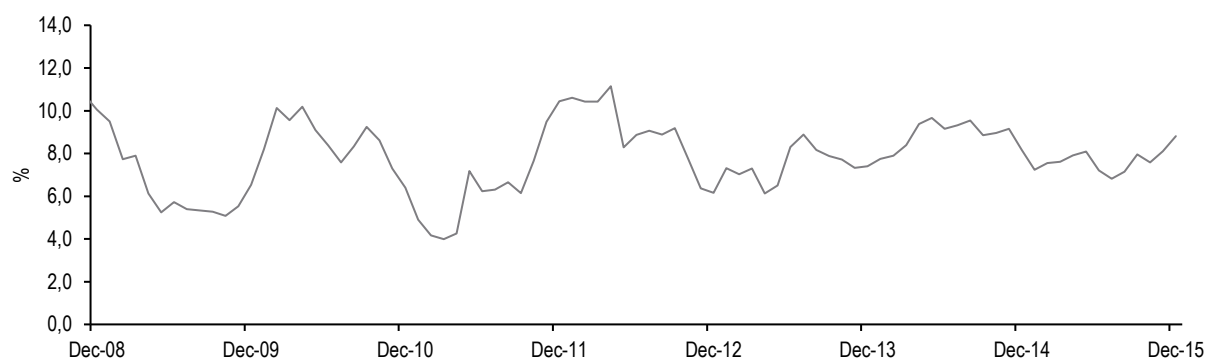
Table 17: Exchange rates used in the report

Currency	2012	2013	2014	2015
TL/EUR	2,316	2,531	2,911	3,024

The turnovers by sector and value-added per employee by sector were not available for the year 2015. The last data available was from 2014. We used this data and indexed it with the inflation rates in Turkey. Indexing is the value adjustment to general price developments and/or inflation.

Table 18: Inflation rates used in the report

Currency	2012	2013	2014	2015
Inflation rate	8,94%	7,49%	8,85%	7,67%



Annex V: Glossary

Alcohol by volume	Indication of alcoholic strength expressed as percentage included in a beverage.
Backward linkage	The upstream impacts in the supplying sectors of the brewing industry.
Bottom-up approach	Analysis of the direct, indirect and induced effects, taking a selection of brewing companies as a starting point.
Brewing sector	All the brewing companies located within a certain geographical area. These companies may also be involved in activities other than brewing beer, such as the production of soft drinks and bottled mineral water.
Brewery	A plant or an establishment for the manufacture of beer.
Brewing company	A company which produces and/or sells beer.
Corporate tax	<p>Corporate tax or company tax is the tax imposed on the income or capital of companies.</p> <p>For tax purposes, in Turkey companies are grouped as limited liability companies (corporations and limited companies) and personal companies (limited and ordinary partnerships). Corporate tax applies to limited liability companies. State economic enterprises and business entities owned by societies, foundations and local authorities are also subject to corporate tax. Whether a company is subject to full or limited tax liability depends on its status of residence. A company, whose statutory domicile or place of management are established in Turkey (resident company), will have full tax liability; in this case, worldwide income is taxable. If a non-resident company conducts business through a branch or a joint venture, it will have limited tax liability; i.e. fully subject to corporate tax on profits earned in Turkey on an annual basis. If there is no presence in Turkey, withholding tax will generally be charged on income earned; for example, for services provided in Turkey. However, if there is an avoidance of double taxation treaty, reduced rates of withholding tax may apply.</p> <p>The basic corporate income tax rate levied on business profits was 20% in Turkey.</p>
CPI	Current inflation Turkey (CPI Turkey) - the inflation is based upon the Turkish consumer price index. The index is a measure of the average price which consumers spend on a market-based "basket" of goods and services. Inflation based upon the consumer price index (CPI) is the main inflation indicator in most
Direct impact	Employment, value-added and tax revenues for governments generated directly by the brewing sector.
Environmental tax	Municipalities in Turkey are authorized to collect an environmental tax as a contribution towards the financing of certain services such as garbage collection. For the households, this tax is levied according to the water consumption of the household which is multiplied by a fixed amount that varies according to the location of the house. For the offices, this tax is levied in scheduled fixed amounts that are adjusted according to the location of the office. This tax is paid through the water bill of the property by the person who lives in or occupies the house or office in question.

EU 28	Average for the 28 European Union Member States or the 28 countries of the European Union: Austria, Belgium, Bulgaria, Southern Cyprus, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.
Excise	Taxation on the production volume, rather than the production value, of a certain good. In the case of beer it is often related to the amount of alcohol released for consumption.
Exports	The annual volume of beer sold and shipped to foreign countries.
First round employment	The amount of jobs that are directly generated in supply sectors by purchases of the brewing sector. The employment that is generated by purchases of these supply sectors is not included.
Forward linkage	The downstream impacts in the businesses selling beer, particularly the retail outlets (also referred to as off-trade) and hospitality sector (also referred to as on-trade).
FTEs	Full time equivalents
GDP	Gross domestic product
GDP PPS	Gross domestic product in purchasing power standards
Government revenues	Amount of money received by the government from outside the government entity. In this study these revenues include corporate tax, excise revenues on beer, VAT on beer sold in the hospitality and retail sector and all labour-income-related revenues from jobs in the brewing sector and jobs in other sectors generated by beer production and sales. These income-related revenues include personal income tax, social security contributions paid by employees and social security contributions and payroll taxes paid by employers.
Hectolitre (hl)	A metric unit of volume or capacity. One hectolitre equals 100 litres.
Implicit tax rate on labour	Ratio of taxes and social security contributions on employed labour income to total compensation of employees. It is the sum of all direct and indirect taxes and employees' and employers' social contributions levied on employed labour income divided by the total compensation of employees working in the economic territory increased by taxes on wage bills and payroll.
Backward linkages employment	Impact of the brewing sector on supply sectors in terms of employment or value-added. For example: farmers selling hops or barley or the manufacturing industry producing bottles, cans, and kegs or brewing equipment.
Forward linkages employment	Employment at companies that distribute or sell beer, mainly in the wholesale, retail and hospitality sectors. For example: bartenders, waitresses and shopkeepers. For this study, the induced employment is confined to the retail and hospitality sectors.
On-trade	Beer sales through (licensed) pubs, clubs, bars, restaurants et cetera.
Off-trade	Beer sales through shops, supermarkets and other specialised retail outlets.

Personal income tax	A tax levied on the personal income of people. In this study taxes on income from labour generated by beer production and sales are included in the figures.
Personnel cost	The total remuneration payable by an employer to an employee in return for work done by the latter during the reference period. Besides salary, personnel costs also include taxes and employees' social security contributions retained as well as the employer's social contributions.
Plato degree	A unit measuring sugar content of beer. For tax purposes it is assumed that one °P is equivalent to 0.4% alcohol. Plato degree expresses the weight of any substance in solution as a percentage of the weight of that solution, based upon sucrose dissolved in pure water. A density that measures one °P means that 1% of the weight of the measured liquid is dissolved sugar.
Production value	The amount actually produced by the company, based on sales, including changes in stocks and the resale of goods and services. The production value is defined as turnover, plus or minus the changes in stocks of finished products, work in progress and goods and services purchased for resale, minus the purchases of goods and services for resale, plus capitalized production, plus other operating income (excluding subsidies). Income and expenditure classified as financial or extraordinary in company accounts is excluded from production value.
Purchases of goods	The value of all goods and services purchased during the accounting period for resale or consumption in the production process, excluding capital goods. It refers to externally-bought products and services.
Social Security Contributions (SSC)	Financial contributions paid by employees and their employers giving access to the social security system and entitlement to certain benefits in situations of unemployment, sickness, disability or old age.
Stamp Tax	Stamp duty applies to a wide range of documents, including contracts, agreements, notes payable, capital contributions, letters of credits, letters of guarantee, financial statements and payrolls. Stamp duty is levied as a percentage of the value of the document at rates ranging from 0.165% to 0.825%. Stamp Tax is payable by the parties who sign a document. Each and every signed copy of the agreement is separately subject to Stamp Tax.
TAPDK	Turkish Regulatory Committee for Tobacco, Tobacco products and Alcoholic Beverages Market.
Tax parity	Ratio between excises levied on beer and other alcoholic drinks such as spirits and wine (per litre of pure alcohol). Equality of prices of goods. The tendency to tax some drinks more than others.
Top-down approach	Analysis of the direct, indirect and induced effects, taking existing statistics as a starting point.
Value-added	Difference between the production value and the value of purchased inputs (goods and services). In economic terminology value-added is also defined as the reward for all production factors (mainly labour, capital, entrepreneurship).
VAT	A value added tax (VAT) is a form of consumption tax. From the perspective of the buyer, it is a tax on the purchase price. From that of the seller, it is a tax only on the "value added" to a product, material or service. The VAT is Katma Deger Vergisi (KDV) in Turkish and the rates vary between 1% and 18% but it's generally applied as 18%.

Annex VI: Impact on Suppliers

Table 19: Impact on suppliers in 2013					
Sectors	Total amount of purchases (mln EUR)	Stimulus for Turkey		Turnover per employee (EUR)	Number of employees (persons)
		% spent in Turkey	(mln EUR)		
Agriculture	122	59%	72	10.425	7.092
Utilities	40	100%	40	391.266	101
Packaging and bottling industry	202	93%	188	108.390	1.763
Equipment and manufacturing	21	71%	15	108.390	145
Transport and storage	12	100%	12	115.275	106
Media, marketing and communication	72	100%	72	115.275	629
Other services	0,7	100%	0,7	35.248	19
Total	470	-	399	-	9.855
First-round impact as % of total impact					65%
Total backward employment effect of brewing sector					15.161

Source: Questionnaires, EY Analysis

Table 20: Impact on suppliers in 2014					
Sectors	Total amount of purchases (mln EUR)	Stimulus for Turkey		Turnover per employee (EUR)	Number of employees (persons)
		% spent in Turkey	(mln EUR)		
Agriculture	81	59%	48	9.866	4.951
Utilities	35	100%	35	362.662	98
Packaging and bottling industry	195	89%	174	103.013	1.726
Equipment and manufacturing	21	51%	10	103.013	95
Transport and storage	16	100%	16	103.241	152
Media, marketing and communication	41	100%	41	103.241	398
Other services	0,7	100%	0,7	32.197	22
Total	389	-	325	-	7.441
First-round impact as % of total impact					65%
Total backward employment effect of brewing sector					11.448

Source: Questionnaires, EY Analysis

Table 21: Impact on suppliers in 2015					
Sectors	Total amount of purchases (mln EUR)	Stimulus for Turkey		Turnover per employee (EUR)	Number of employees (persons)
		% spent in Turkey	(mln EUR)		
Agriculture	95	67%	64	10.227	6.586
Utilities	34	100%	34	375.935	90
Packaging and bottling industry	198	85%	169	106.784	1.602
Equipment and manufacturing	21	74%	15	106.784	152
Transport and storage	17	100%	17	107.020	157
Media, marketing and communication	39	100%	39	107.020	365
Other services	0,9	100%	0,9	33.375	26
Total	405	-	339	-	8.979
First-round impact as % of total impact					65%
Total backward employment effect of brewing sector					13.813

Source: Questionnaires, EY Analysis

Annex VII: Contact Information

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The Beer and Malt Producers' Association of Turkey

The Beer and Malt Producers' Association is founded in 2003. The association has 26 members and his main activity is to defend their interests. The purpose of the association is to deal with the problems of the members which perform the beer and malt production or marketing and to develop some suggestions of solutions for these problems , to defend the rights and benefits of the members at the sector basis , to make contribution to the establishment of the competitive environment which will ensure the developments of the sector , to inform the consumers , to observe the international developments and to convey the new information concerning the sector to its members and to perform the duties which are directed at the development of quality.

Meanwhile, the Association is an active member of the European Brewers Confederation (The Brewers of Europe) which is headquartered in Brussels. It is participates in the General Board and Secretary General meetings of this Federation. For more information: www.biramalt.com.

For more information about this study, please contact us.

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