OXFORD ECONOMICS

THE ECONOMIC CONTRIBUTION OF BEER IN LOWER INCOME COUNTRIES

JANUARY 2024

ABInBev


LEGÍTIMA
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EXECUTIVE SUMMARY

$34 billion

The beer sector's contribution to GDP in lower income countries. The average contribution to GDP was 1.6% across lower income countries in 2019, compared to 0.9% across high income countries.

6.7 million

Jobs supported by the beer sector in lower income countries.

In 2022, we published a study of the global beer sector's economic footprint across 70 countries, conducted on behalf of the Worldwide Brewing Alliance using 2019 data. One main finding of our previous study is that the beer sector's economic significance is substantially larger across lower income economies.

In this report, we investigate further the importance of the beer sector in lower income economies. We begin by examining why the beer sector's economic significance is greater in lower income countries, and then analyse how beer consumption varies across countries. We also explore how these economic contributions could potentially increase further if the share of beer consumption rose, while keeping overall alcoholic beverage consumption level constant. We conclude with recommendations for further studies.

The beer sector already supports larger shares of economic value in lower income economies. In 2019, the beer sector's contribution to GDP averaged 1.6% across lower income countries, almost double its contribution to GDP in high income countries (an average of 0.9% of national GDP). The beer sector in lower income countries also supported more jobs in both absolute and relative terms (an average of 1.4% of national employment versus 1.1% in high income countries), which could be explained by the lower levels of labour productivity and a more prominent role of agriculture in these countries. The beer sector in these countries is also characterised by a less prominent role of the downstream segment (accounting for only 39% of the sector's gross value added contribution, compared to 62% in high income countries) and a lower level of internationalisation (nearly all the beer sold in lower income countries is produced domestically, compared to high income countries where an average 12% of sales by downstream businesses is imported from overseas).

Beer consumption tends to be lower in lower income countries compared to the rest of the world. The average person in lower income countries consumes only one third of the beer consumed by their counterparts in high income countries. Despite lower prices and lower levels of consumption, consumers in lower income countries allocate a larger share of their disposable income to beer compared to individuals across other country income groups.

This indicates beer is comparatively less affordable in lower income countries. Furthermore, we find that demand for beer increases disproportionally at low income levels (i.e., among lower income countries), but is much less income sensitive as countries become richer. This suggests that beer behaves as a "luxury good" in lower income economies, as opposed to a "normal good" in high income countries. While these general observations are made based on consumption patterns, we are not able to draw any conclusions about the significance or causality of the relationship between disposable income and beer consumption.

$67

Average per capita expenditure on beer in lower income countries, significantly lower than the $403 spent in high income countries.

The beer sector could make even larger economic contributions in lower income countries if beer was a larger share of total alcohol consumption. We estimate that total gross value added contribution by the beer sector could rise to an average of 2.2% of GDP across lower income economies. The sector's potential to grow is found to be greatest in India, Ethiopia, and Ghana.

There are several constraints to the beer sector's potential to make even larger economic contributions in lower income countries. When accounting for alcohol content and volume, beer is relatively more expensive than spirits across countries of all income groups, with a larger difference found among lower income countries. Looking at excise duties by ethanol content, beer is also taxed more than spirits across lower income countries. Beyond prices, there are other factors to consider that can influence people's decisions to consume beer, including tastes and cultural differences. In certain countries, spirits, wine, and other alcoholic beverages are preferred and more popular than beer.

+$37 billion

The potential increase in contributions to GDP by the beer sector in lower income countries if beer consumption levels rose to our counterfactual scenario.

There is however much left to explore in relation to this topic. Some possible extensions to this study could involve looking at the overall macroeconomic impact of increased beer consumption on the economy; assessing tax frameworks for alcohol; investigating the impact of unrecorded alcohol consumption; exploring causal relationship between consumption patterns and key drivers using a detailed econometric model.

1. INTRODUCTION

The beer sector brings together a wide range of organisations which are responsible for producing, marketing, distributing, and selling beer to millions of consumers across the globe. In carrying out these activities, businesses create and stimulate significant economic contributions to the global economy.

In 2022, we published a study of the global beer sector's economic footprint across 70 countries, conducted on behalf of the Worldwide Brewing Alliance. In this first-of-its-kind study, which took a global perspective to estimate the beer's economic footprint using 2019 data, we quantified the beer sector's economic contribution supported by brewing and selling beer (the sector's direct impact), its spending with suppliers of goods and services (its indirect impact), and the wage-funded spending in the consumer economy by employees of the beer sector itself and its supply chains (its induced impact).

Our study demonstrated how important the beer sector is to economies around the globe. The study revealed that, in 2019, the beer sector supported an estimated $555 billion in gross value added contributions to global GDP and around 23 million jobs. Notably, we found that the global beer sector's contribution is especially important to lower income countries.

In this report, together with AB InBev, we investigate further the role of the beer sector for lower income economies. We start by examining why the beer sector's economic significance is higher in lower income countries, and then analyse how consumption trends vary across countries. Finally, we explore how these economic contributions could potentially increase further if beer's share of total alcoholic beverage consumption increased. We conclude with recommendations for further studies.

2. THE BEER SECTOR'S ECONOMIC FOOTPRINT

Digging further into the results of our previous study, this section of the report describes how the beer sector's economic contributions vary across income groups and the key drivers behind these differences.[1] Based on the World Bank's definition of income groups, we categorised the analysed countries into the following groups: high income, upper middle income, and lower income.[2]

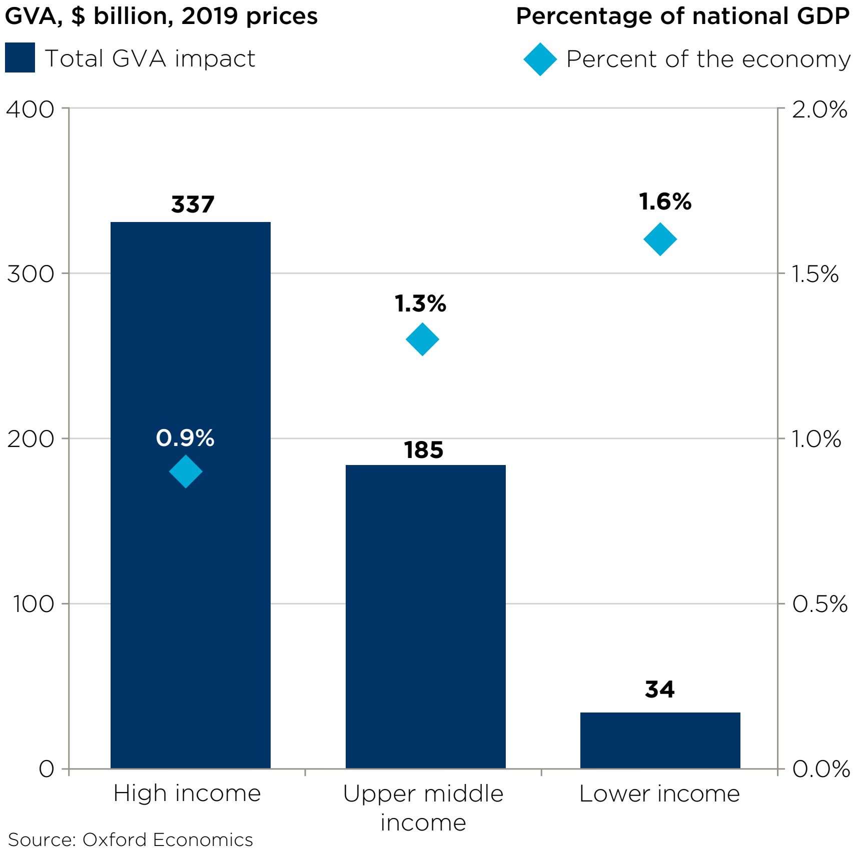
The beer sector—comprising both brewers and the downstream value chain, which includes beer distributors, retailers, and the hospitality industry—supports substantial economic benefits across the globe. In 2019, we estimate that brewers' and beer's downstream value chain supported $1 in every $131 of global GDP and one in every 110 jobs in the global economy.[3]

One main finding of our previous study was that the beer sector's economic significance was substantially larger across lower income economies.

The beer sector's total gross value added contribution as a share of national GDP averaged 1.6% across lower income countries in 2019.[4] In these countries, the beer sector's total impact was nearly twice as important as in high income countries—where, on average, the sector supported 0.9% of national GDP. However, in absolute terms, beer's total gross value added contribution in lower income countries amounted to $34 billion—only a 10th of the $337 billion supported in high income economies.

Within the lower income group, the beer sector stimulated the largest gross value added impact as share of national GDP in Cambodia (4.3%), where per capita beer consumption was also the highest. The beer industry stimulated the lowest economic impact as share of national GDP in Indonesia (0.20%), Sri Lanka (0.29%), and India (0.33%). Unsurprisingly, among lower income economies, these three countries recorded the lowest per capita beer consumption in 2019.

Fig. 1: Beer sector's total gross value added contributions by country income group in 2019



Source: Oxford Economics

[1] Oxford Economics, 2022, Global footprint of the beer sector.
[2] World bank, 2021, New World Bank country classifications by income level: 2021-2022, accessed November 2023. The World Bank assigns the world's economy to four income groups: low, lower-middle, upper-middle, and high-income countries. In this study, we combine countries categorised as low and lower-middle income economies as lower income.
[3] In this context, global economy refers to the economy of the 70 countries analysed in this study, which in 2019 accounted for 86% of global GDP.
[4] Consistent with the original 2022 study, this is an unweighted average, rather than a weighted one. The reason we employed unweighted averages is that when using a weighted average the results for one or two large economies can substantially alter the overall results, hiding the true picture seen in most of the countries. For example, the lower income grouping includes both India and Indonesia – large economies with low levels of beer consumption due to cultural factors. Low levels of consumption mean beer's contribution to these economies is small, and their economic size can skew the weighted average contribution for the lower income grouping significantly (from 0.6% when both are included, to 1.4% when they are not). Using an unweighted removes this bias and highlights the experience of other lower income countries, where beer makes a far larger contribution than in high income economies.

The results are somewhat different when we look at jobs, which are higher in both proportional and absolute levels in lower income countries. In 2019, the beer sector supported 6.7 million jobs in lower income countries, or 50% more than the 4.5 million jobs supported in high income economies. In relative terms, the sector's impact was also larger in lower income countries than high income countries, with an average 1.4% and 1.1% of national employment being supported, respectively.[5]

Differences in productivities across income groups, and in the composition of industries stimulated by the beer sector, contribute to explaining the larger jobs impacts across lower income countries. The relative importance of agriculture to lower income countries and lower levels of productivity are among the factors driving these results. That is, the beer sector in lower income countries is more labour intensive than in high income countries.[6]

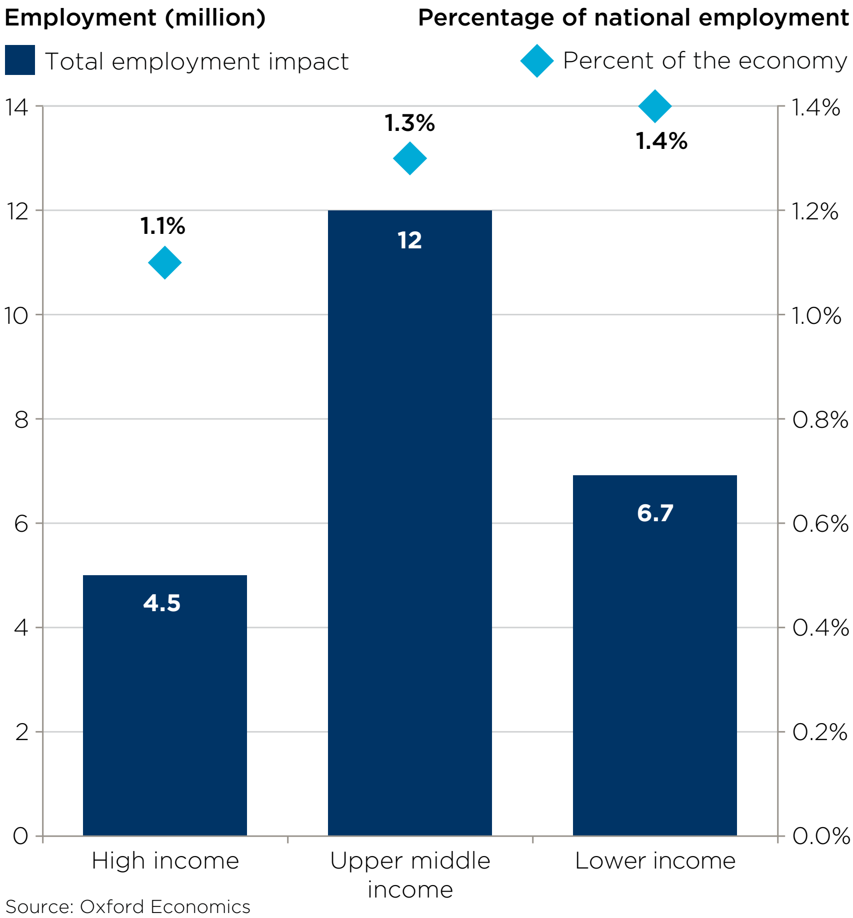
Amongst lower income countries, the beer sector supported the highest total jobs contribution as a share of national employment in Mozambique (3.7%). It was followed by Cambodia with 3.3% of national employment supported by the beer sector. Similar to gross value added impacts, the beer sector's lowest job contributions were in Indonesia (0.21%), India (0.26%), and Sri Lanka (0.33%).

To better understand the features and drivers of the sector's impact, it is important to know how brewers' and beer's downstream value chain contributed to this impact.

Across lower income countries, brewers supported a larger share of the total gross value added impact. Of the $34 billion gross value added contribution supported by beer in lower income economies in 2019, brewers accounted for 61%. This is almost exactly the reverse in high income economies, where businesses along the downstream value chain supported 62% of the overall gross value added impact.

This difference is likely explained by the features and characteristics of downstream activities across different income groups. While brewers tend to be highly productive across all economies, beer's downstream value chain varies substantially across the globe.

Fig. 2: Beer sector's total employment contributions by country income group in 2019



Source: Oxford Economics

[5] This is calculated as the average contribution across countries in the income group.
[6] More labour intensive means that more units of labour are required to produce one unit of output.

Distribution, retail, and hospitality sectors in high income countries often offer more modern services—for example, through higher personalisation and digitisation—which tend to be more costly. This is because running these services requires higher investments and higher operating costs, as well as a more specialised and expensive labour force. The downstream value chain being a labour-intensive sector and average labour wages being relatively higher in high income countries also contribute to explaining the higher value added in these countries compared to lower income economies.

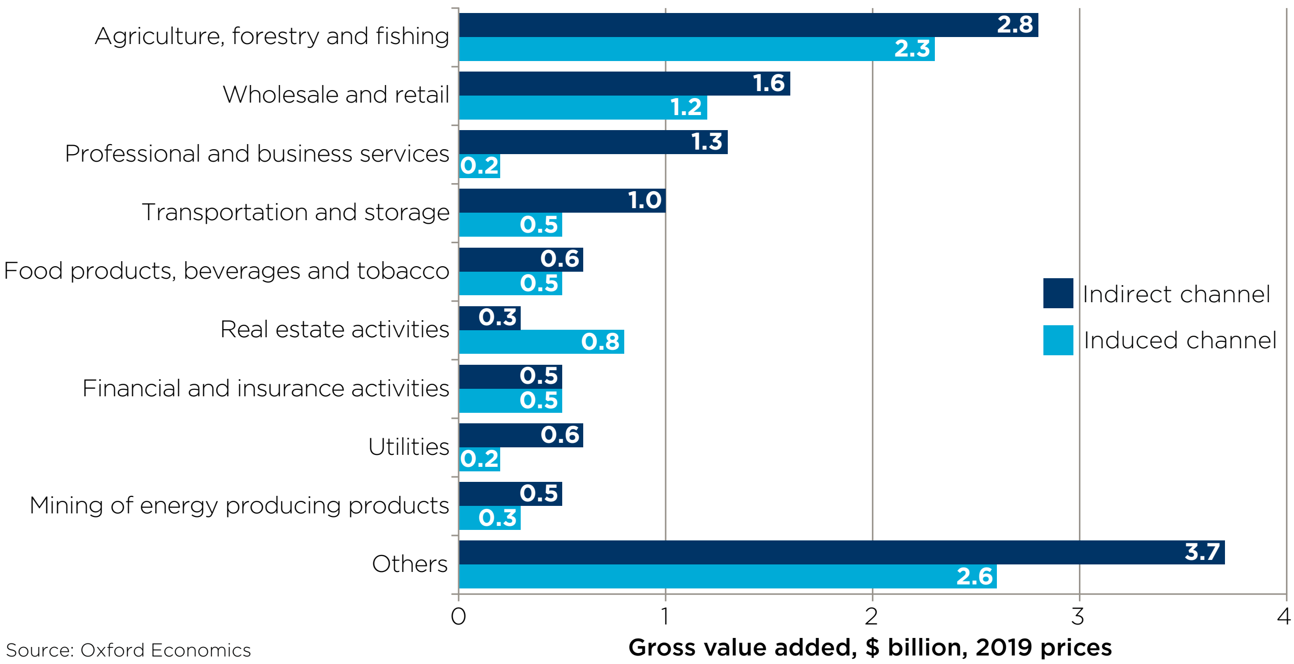
Focusing on employment, brewers supported 55% of the total jobs impact by the beer sector in lower income countries. In high income countries, however, beer's downstream value chain accounted for 73% of the total jobs impact. Because downstream businesses tend to be less productive than brewers, we see a more balanced distribution of the jobs impact across lower income countries.

Agriculture is by far the industry benefitting the most from the beer sector in lower income countries. Of the indirect gross value added supported in these countries ($13 billion), 22% was stimulated in the agricultural industry, followed by wholesale and retail (13%), and professional and businesses services (10%).

A very different picture is observed across high income countries, where businesses in the professional and businesses services industry benefit the most from beer's supply chain activities, accounting for 20% of the total indirect contribution to GDP. In contrast, agriculture did not feature among the top five beneficiary industries in these countries.

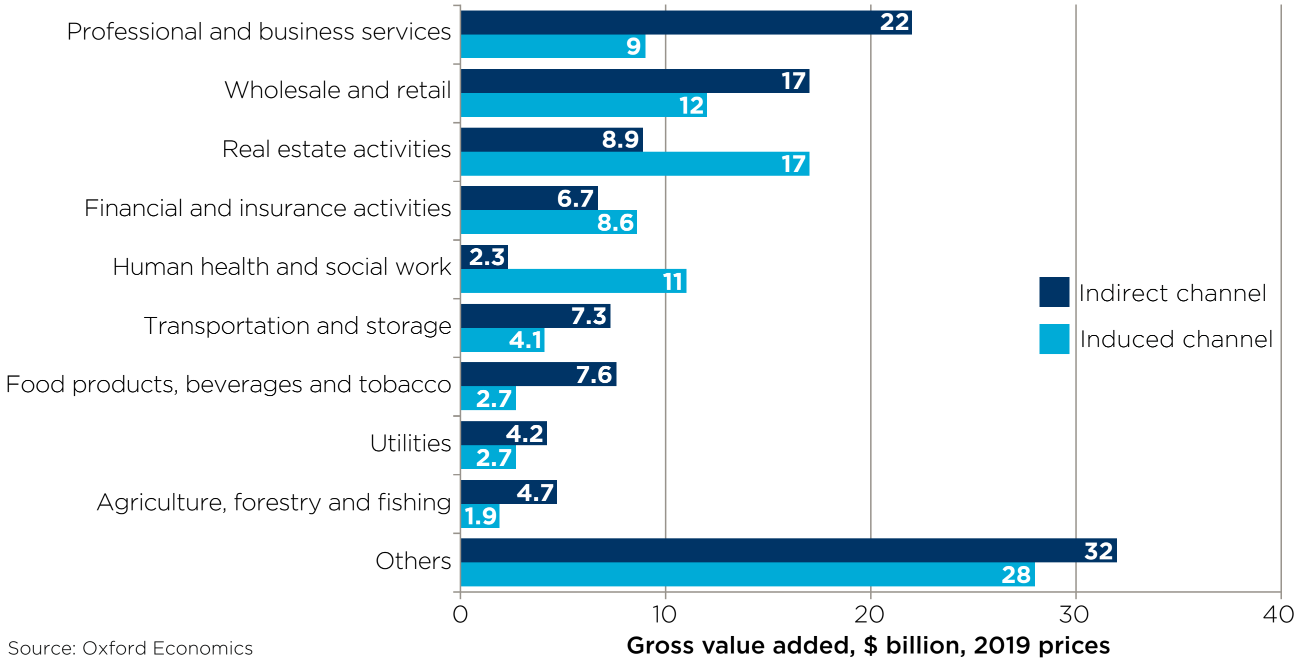
Similar results are observable in the induced channel of impact; although, as to be expected, there are higher impacts among industries typically belonging to the consumer economy, such as real estate services. These results reflect the underlying structure of the economy and how this differs across income groups.

Fig. 3: Beer's impact in lower income countries, by channel and industry (2019)



Source: Oxford Economics

Fig. 4: Beer's impact in high income countries, by channel and industry (2019)



Source: Oxford Economics

Finally, we looked at the extent to which the beer sector and its upstream supply chains are integrated in the global economy, and whether this varies across income groups.

The beer sector tends to be more *domestically focused* in lower income countries with most of its impact originating from local activities.

In 2019, brewers in lower income countries exported, on average, 1.4% of their production, with the remaining 98% of production left for the local market. Meanwhile, businesses in the downstream value chain imported on average 2.6% of finished product for resale.

In contrast, brewers and downstream businesses in high income countries tend to be more integrated in the global economy. In 2019, on average, brewers across high income countries exported 12% of their production and businesses in the downstream activities imported 12% of their final products.

Overall, we identify five distinct features of the beer sector in lower income countries. The first is that, despite having an absolute smaller gross value added impact, the beer sector contributes a larger share to GDP in lower income countries (1.6%) than higher income countries (0.9%). The second is that the beer sector supports more jobs in developing countries in both absolute (6.7 million jobs) and relative terms (1.4% of national employment). Third, lower income countries have lower levels of labour productivity and a more prominent role of agriculture, helping explain the higher number of jobs supported by the beer sector. Fourth, the downstream segment of the beer sector is much less prominent in lower income countries, accounting for 39% of the sector's gross value added contribution, compared to 62% in high income countries. And fifth, the beer sector is much less internationalised in lower income countries, with the downstream segment of the beer sector importing an average of only 2.6% of finished product for resale, compared to 12% in high income countries.

The next section explores differences in spending patterns across income groups and how these can explain some of these observations.

3. BEER CONSUMPTION

Beer is one of the most popular beverages consumed all over the world. In this section of the report, we look at beer consumption patterns across the 70 countries analysed in our previous study and focus on how these vary across and within different income groups.

3.1 BEER CONSUMPTION PATTERNS

Based on Euromonitor data on beer consumption and population data from the World Bank, we estimate that, in 2019, per capita consumption of beer averaged 64 litres across the analysed 70 countries. To consume this quantity, the average person spent $246 on beer each year.[7]

Large differences in spending patterns exist across countries and income groups. While the average person in high income and upper middle income countries spent $403 and $203 to buy and consume beer, respectively, per capita expenditure on beer averaged $67 across lower income countries in 2019. This implies that individuals across lower income countries spent, on average, around 17% and 33% of what their counterparts in high income and middle income countries spent.

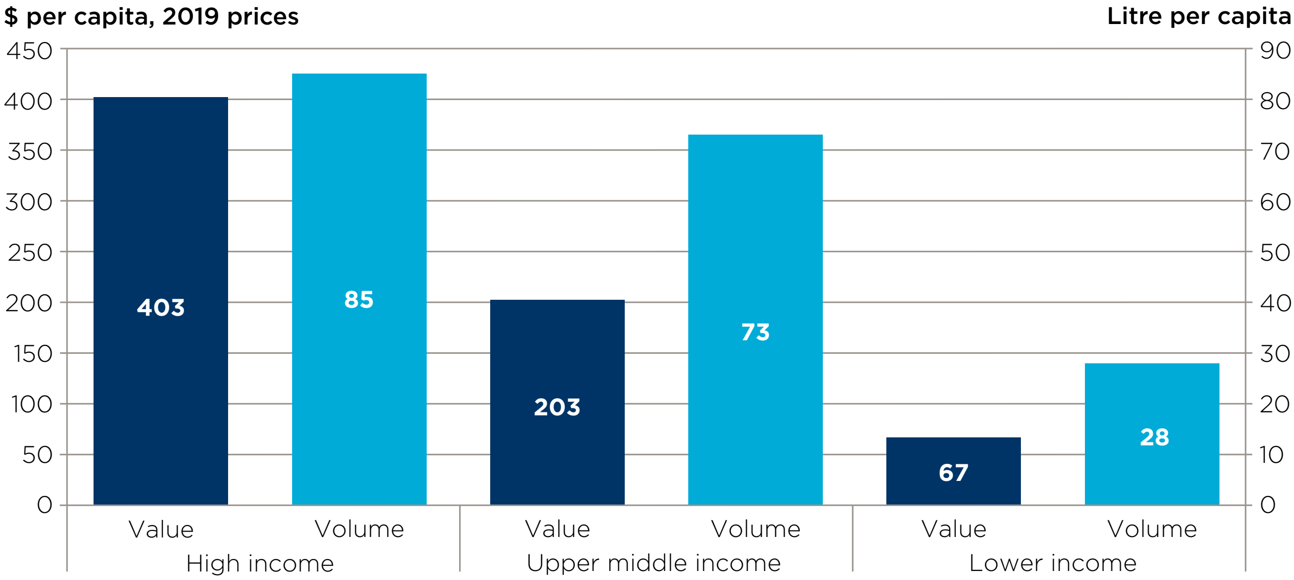
Amongst lower income countries, there were large variations too. For example, while Bolivia's per capita consumption in 2019 was high at $243, on the other end of the spectrum we find India and Indonesia, with an average spending on beer at $8 and $9, respectively.

Differences in average spending are partly driven by beer prices, which tend to be lower in lower income countries. In 2019, beer prices averaged $2.70 per litre in lower income countries, versus the $5.10 per litre and $3.40 per litre in high income and upper middle income countries, respectively.

However, while beer is cheaper in lower income countries, it by no means is more affordable.

Across lower income countries, per capita consumption of beer averaged 28 litres per year in 2019. This is significantly lower than the average 85 litres

Fig. 5: Per capita consumption of beer in 2019, by country income group



Source: Euromonitor, Oxford Economics

[7] World Bank, "WDI population ages 15-64" and "WDI population ages over 64", data downloaded November 2023. Given the World Bank does not publish population data by legal drinking age, we take population ages 15+ as the closest proxy. Euromonitor, 2019, "Industry and Economic and Consumer Data", data downloaded November 2023.

and 73 litres consumed by individuals across high income and upper middle income countries, respectively.

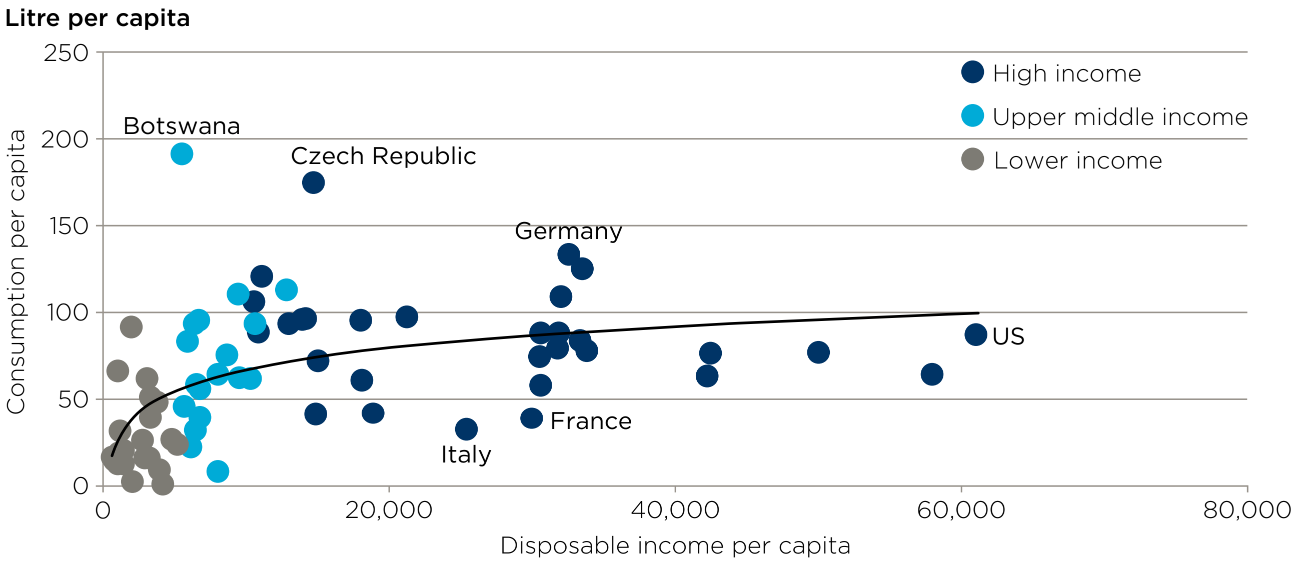
Despite having both lower unit prices and lower consumption volumes, people across lower income countries allocated a larger portion of their disposable income to beer consumption than individuals across high and upper middle income countries. In 2019, the share of household disposable income spent on beer averaged 3.4% across countries in the lower income group, compared to 1.6% and 2.7% in high income and upper middle income countries, respectively.[8] This means that the share of household disposable income spent on beer in lower income countries was more than twice as large as that of high income countries. This suggests that beer is comparatively less affordable in lower income countries in purchasing power parity (PPP) terms.[9]

Examining in greater detail the relationship between disposable income and beer consumption, we observe a general trend of increasing beer volume consumption as disposable income levels increase. The increase in beer consumption tapers off as we reach the richest countries such as the US, suggesting the presence of a non-linear relationship between disposable income and beer consumption. While these general observations can be made based on consumption patterns, we are not able to draw any conclusions about the significance or causality of the relationship between these two variables. This could be further investigated using a detailed econometric model.

We also note substantial variation within each group. For example, countries with similar levels of disposable income such as France and Germany show different consumption patterns, with the average German consuming nearly three times as much beer as the typical French person. This reflects different tastes, as demonstrated by wine consumption per capita being 1.5 times higher in France than in Germany.

Focusing on lower income countries, per capita consumption of beer across India and Indonesia amounted to 2.6 litres and 1.3 litres, respectively, in 2019. In contrast, each person in Cambodia consumed around 92 litres of beer, which is more than average beer consumption across high income countries (85 litres).

Fig. 6: Country level per capita consumption of beer versus disposable income in 2019



Source: Euromonitor, Oxford Economics

8 Oxford Economics, "Total household personal disposable income", Global data economics databank, data downloaded November 2023.
9 Purchasing power parity is a rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries. Source: OECD, "Purchasing Power Parities - Frequently Asked Questions (FAQs)", accessed December 2023.

Beer behaves as a "luxury good" in lower income economies, and as a "normal good" in high income countries. Demand increasing disproportionally as income rises is typical of "luxury goods", which in economic theory are defined as goods with an income elasticity of demand greater than one. This is because people tend to spend a higher share of their income on the luxury good as their incomes increase. In contrast, beer behaves as a commodity or "normal good" in high income countries. "Normal goods" are those for which demand increases as income rises, but the demand is less income sensitive than for luxury goods (income elasticity of between zero and one). Again, a detailed econometric model could be used to confirm these observations.

In addition to income levels, multiple factors are responsible for differences in beer consumption across countries. These likely include, but not be limited to, consumer preferences, government policies and interventions, social norms, and religious beliefs. We explore this topic in section 5 of this report.

3.2 BEER CONSUMPTION IN THE CONTEXT OF THE BROADER ALCOHOL INDUSTRY

To provide a comprehensive overview of consumers' behaviour across different income groups, it is important to look at beer consumption in the context of the broader alcoholic beverage consumption pattern.

It is important to take into consideration unrecorded alcohol consumption to complete the picture. Unrecorded alcohol consumption refers to alcohol that is produced and consumed outside of governmental control and, therefore, remains unrecorded. It includes home or informally produced alcohol (legal or illegal), smuggled alcohol, surrogate alcohol (which is alcohol not intended for human consumption), or alcohol obtained through cross-border shopping (which is recorded in a different jurisdiction).[10]

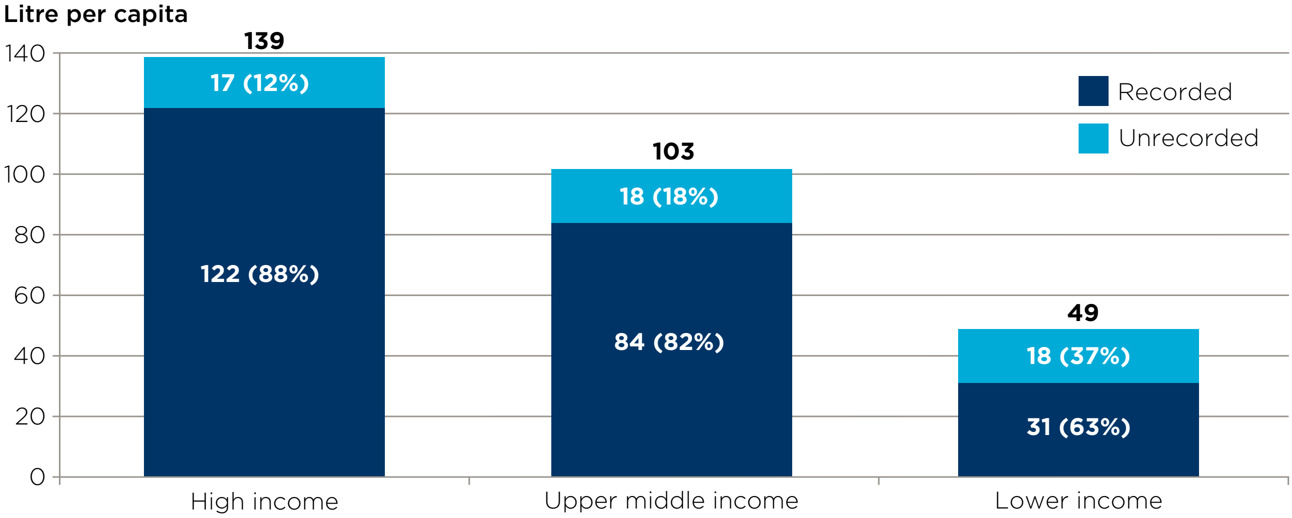
We use data from the World Health Organization on the unrecorded share of alcohol consumption (by litres of pure alcohol) and data from Euromonitor on current consumption of alcoholic beverages (by beverage volume) to estimate beverage volumes of unrecorded and recorded alcoholic beverages consumed across the 70 countries of the global study. Using this approach, we assume that the beverage mix of the unrecorded market is the same as that of the recorded market. To note, this approach could overstate the share of unrecorded beverages in beverage volume terms if spirits account for a larger share of unrecorded consumption versus recorded consumption.

Based on this approach, we estimate that lower income countries have the highest share of unrecorded alcoholic beverage consumption. On average, each person consumed an estimated 0.37 litres of unrecorded alcoholic beverage for every 1 litre of alcoholic beverages consumed in 2019, or 37% of the per capita consumption in lower income countries. In comparison, on average, unrecorded alcoholic beverage consumption only accounted for 12% and 18% of the per capita consumption in high and upper middle income countries, respectively.

The importance of the unrecorded alcohol market varies substantially across lower income countries. While overall per capita consumption of alcohol was very low in Indonesia, illicit alcohol is estimated to have actually accounted for 56% of total alcohol consumed. On the other hand, only 8.8% and 10% of alcoholic beverages consumed in 2019 was estimated to have been unrecorded in Myanmar and Sri Lanka, respectively.

[10] World Health Organization (WHO), "Alcohol, unrecorded per capita (15+) consumption (in litres of pure alcohol) with 95%CI", data downloaded December 2023

Fig. 7: Estimated shares of recorded and unrecorded alcoholic beverages, by country income group (2019)

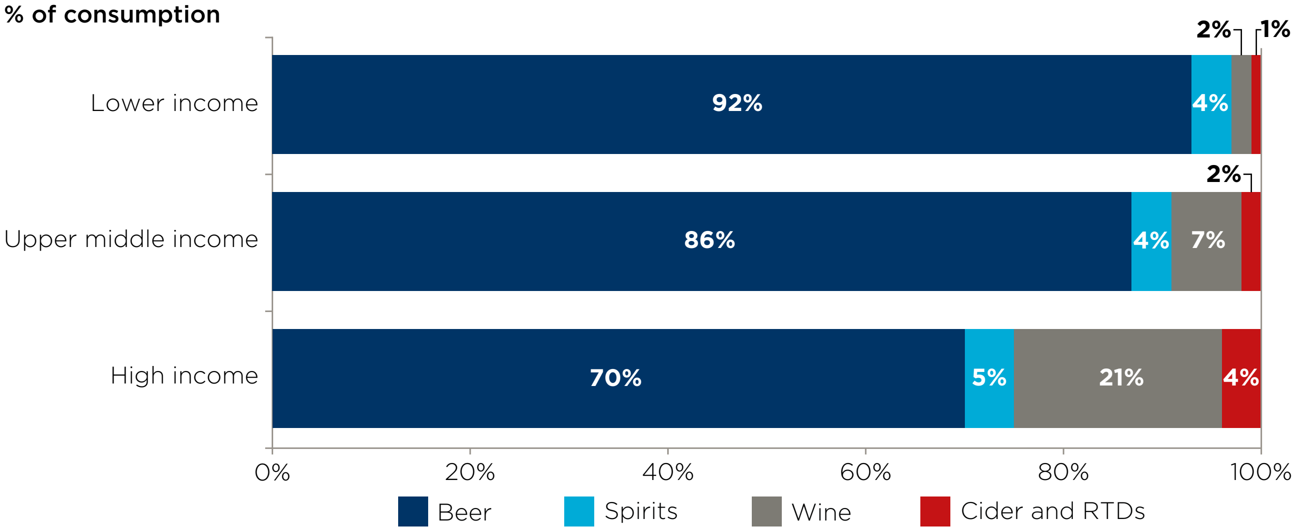


Source: Euromonitor, World Health Organization, Oxford Economics

Note: Totals may not sum due to rounding.

Focusing on the recorded market, beer is the most popular alcoholic beverage across all country income groups. In addition to beer, consumers also drink wine, spirits, cider, and ready-to-drink beverages (RTDs).[11] In 2019, on average, beer consumption in high income countries accounted for 70% of each person's total recorded alcoholic beverage consumption. The preference for beer is even stronger in lower income countries, with beer accounting, on average, for 92% of the recorded per capita alcoholic beverages consumed in 2019.

Fig. 8: Per capita consumption of recorded alcoholic beverages, by type and by country income group (2019)



Source: Euromonitor, Oxford Economics

[11] Other terms which may be used for these products are FABs, alcopops and premixes. The RTDs sector is the aggregation of malt-, wine-, spirit- and other types of premixed drinks. Source: Euromonitor, "Industry & Category Definitions", accessed December 2023.

4. THE BEER SECTOR'S POTENTIAL TO GROW IN LOWER INCOME COUNTRIES

What if lower income countries consumed more beer? How would this change the beer sector's economic contributions in these countries? In this section of the report, we explore how beer's economic contribution could increase in lower income countries if per capita consumption and spending on beer were higher. To do this, we assume that people can switch their alcoholic consumption to beer, but will not increase their total consumption of alcoholic beverages.

4.1 MODELLING APPROACH

We produce a counterfactual scenario to consider how an increase in beer consumption could change the economic impact of the sector in lower income countries. Our counterfactual scenario considers per capita spending on beer among lower income countries with higher beer consumption, but also applies a constraint that limits the maximum amount of beer consumption for a country to its current level of overall alcohol consumption. Specifically, we model the increase in per capita beer spending as a movement to the lowest of the two options below:

- 90th percentile of current per capita spending across lower income countries ($126).
- Implied per capita spending on beer if all recorded and unrecorded consumption of alcohol in a given country was beer.

Countries with a current per capita spend on beer higher than $126 are kept unchanged.

This method conservatively assumes that people can switch up to all their alcoholic consumption to beer but will not increase their total consumption of alcoholic beverages. More detail on this assumption and model limitations can be found in the Appendix.

4.2 BEER SECTOR'S POTENTIAL TO CONTRIBUTE MORE TO LOWER INCOME ECONOMIES

The beer sector has the potential to grow and play an even larger role in lower income economies by supporting further economic contribution to the economy. We estimate the additional economic contribution that could be supported by the beer sector in lower income countries, by contrasting the contributions estimated from our previous study.

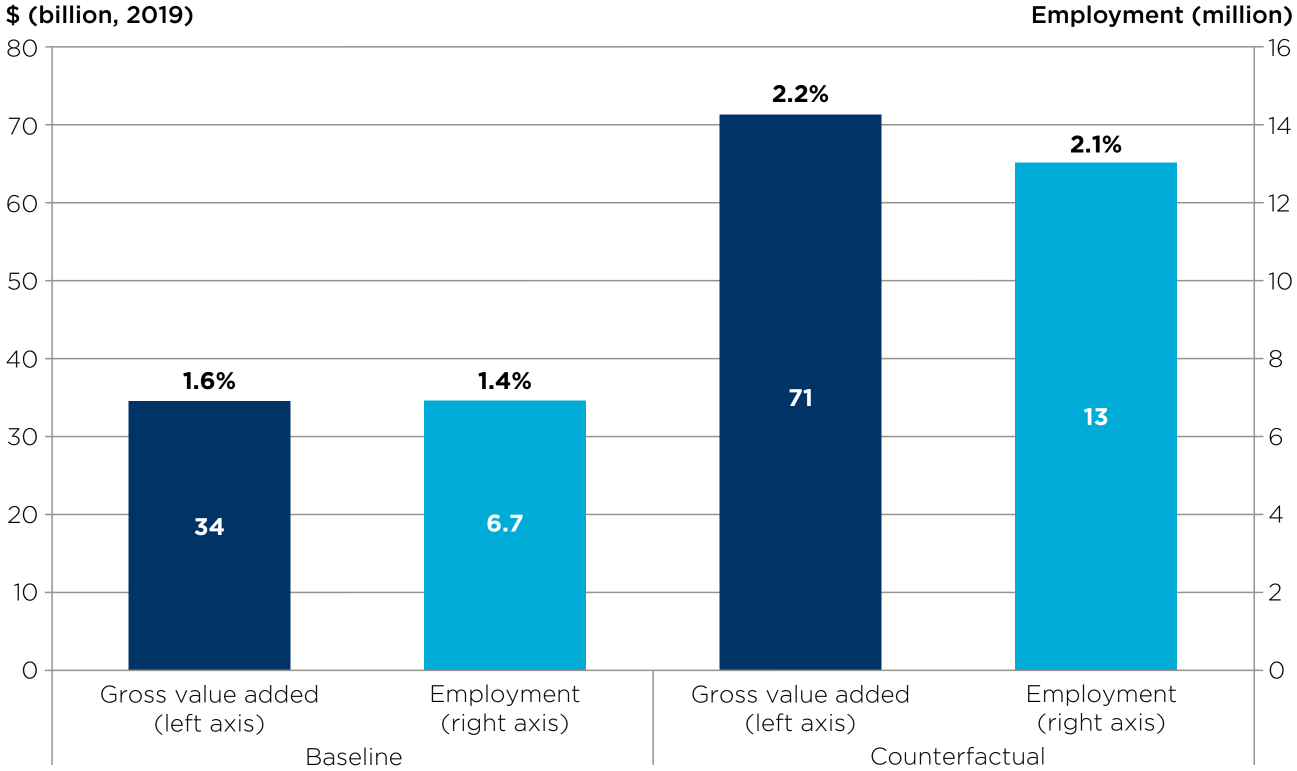
Before delving into the analysis and its results, it is important to highlight a key modelling caveat. In this study, we estimate the gross impact on demand of increased domestic consumption in terms of the economic activity supported by the beer sector. However, this approach does not consider macroeconomic dynamics, such as a higher proportion of the additional spending on beer displacing other uses. Such effects would require an assessment of the net impact on the macroeconomy and supply side, which would take into account other considerations such as impacts on capacity, competition, productivity, and changes in the country's industrial composition. Estimating the net impact on the macroeconomy can be achieved using different modelling techniques, such as a computerised general equilibrium model, which, however, are not the subject of this study.

Our scenario analysis shows that the beer sector's total economic contribution could significantly increase across lower income economies if beer consumption rose. We estimate that total gross value added contribution to lower income countries' GDP by the beer sector could rise to $71 billion. This would represent a 109% growth compared to the $34 billion total 2019 impact. We calculate the sector's average contribution could rise by 58%. In terms of relative significance, the beer sector's total gross value added contribution to GDP would account for an average 2.2% of GDP across lower income economies if per capita spending on beer were to increase to the hypothesised levels (compared to the average 1.6% of GDP supported in 2019).

Under the scenario assumptions, we estimate the beer sector activities could stimulate 13 million jobs across lower income economies, a 90% increase on the total 6.7 million jobs supported in 2019. Under the counterfactual scenario, the beer sector could support an average 2.1% of employment across lower income countries, compared to an average 1.4% supported in 2019. The increase in jobs is driven by more people being needed to produce, move, and sell the higher volume of beer demanded, as well as more people working across the beer sector's supply chain. Of the 6.1 million jobs increase, about 52% is expected to be driven by brewers, with the remaining 48% supported by the beer sector's downstream value chain.

Within the lower income group, there is significant variation among countries, with India and Ethiopia showing the greatest potential for growth in beer's economic impact. India is the sixth largest economy in the world, with a total GDP of $2.7 trillion and a population of 1.4 billion in 2019.[12] In 2019, per capita spending on beer in India averaged only $8, the lowest figure within the lower income group. The country, however, has an established spirits industry and is the only lower income country in this study with a net preference for these beverages over beer.

Fig. 9: Beer sector's economic contributions in baseline and counterfactual scenarios, 2019



Source: Oxford Economics Note: Percentages refer to percentage of national GDP and percentage of employment supported respectively.

[12] World Bank, "GDP (current US$)", data downloaded December 2023 and World Bank, "Population total", data downloaded December 2023.

Furthermore, the share of unrecorded alcohol market is substantial in India (i.e., 46% of pure alcohol consumption was unrecorded in 2019). We assume that, if beer became more popular across consumers and the unrecorded market disappeared, per capita spending on beer could grow by more than three-fold, from $8 to $30. Based on this assumption, we estimate that the beer sector's gross value added contributions to GDP could grow from $9.3 billion to $36 billion. If this were to occur, the beer sector's total economic contribution would account for 1.3% of India's national GDP, compared to the 0.33% supported in 2019. This activity would also support 4.8 million jobs, which would be equivalent to 1.0% of all India's employment, compared to the 0.26% in the same year.

The beer sector could also play a significantly greater role in Ethiopia too. According to Euromonitor, Ethiopia's per capita consumption of alcohol was less than 20 litres in 2019, and per capita spending was $37. The per capita consumption and spending are notably lower than its peers in the lower income group. Furthermore, there is a large illicit market in the country; almost 50% alcoholic consumption goes unrecorded in Ethiopia, according to the World Health Organization. Coupled with the fact that 98% of the recorded alcohol consumption is beer, suggesting a strong preference for that drink, there is a possibility that a substantial amount of the unrecorded alcoholic consumption could be converted into recorded beer sales, which would increase the current market size. We estimate that the beer's gross value added contribution could almost double and reach up to $3.1 billion under our counterfactual scenario. If this occurred, the gross value added contribution would be equivalent to 3.3% of Ethiopia's GDP in 2019. The potential growth could stimulate up to 1.2 million jobs, accounting for 2.2% of all employment in the country.

Some countries already have large beer consumption and spending levels and, therefore, their potential to grow is limited. Cambodia, Vietnam, Bolivia, and Honduras have similar beer consumption levels to those in high income group (i.e., average per capita spending on beer across high income countries was 85 litres in 2019). The beer sector's scope to grow further in these countries is limited. Indeed, we estimate that the beer sector's economic contribution would only increase by between 1% to 5% in these countries in our counterfactual scenario.

In contrast, in some countries, such as Myanmar, the beer sector has narrow potential for growth, despite beer consumption being currently low. People in Myanmar consumed on average 13 litres of alcohol in 2019, of which 96% was beer. Furthermore, the unrecorded market was relatively small, accounting only for an estimated 8.8% of total alcohol consumption. Even if people switched the totality of their alcoholic consumption to beer, and unrecorded alcohol became recorded, per capita spending on beer in this country would increase by 14% at most. With this in mind, we estimate that the beer's gross value added contribution could reach up to $1.7 billion under our scenario assumptions. This economic contribution would account for 2.4% of Myanmar's GDP in 2019, an increase from the current baseline scenario of 2.2%. This activity would also support in excess of 480,000 jobs which would account for 2.1% of all employment in the country in the same year, which is an increase from the 1.9% estimated in 2019.

5. FACTORS INFLUENCING BEER CONSUMPTION IN LOWER INCOME COUNTRIES

The findings outlined in Chapter 3 of this report rely on the overarching assumption that beer consumption can increase in lower income countries. However, increasing beer consumption poses certain challenges, even when we assume that the increase in beer consumption is capped at the current size of the alcohol market.

In this section of the report, we explore some of the main drivers of beer consumption—besides income levels. To do this, we distinguish between factors affecting total alcohol consumption and drivers of beer consumption relative to other alcoholic beverages.

5.1 FACTORS INFLUENCING ALCOHOL CONSUMPTION

Differences in alcohol consumption across countries are explained by a combination of factors. In addition to income levels, these can include age and gender distribution of population, government policies, education levels, and religious beliefs, just to cite a few.

5.1.1 Religious beliefs

Religion plays an integral role in many people's lives on a day-to-day basis, including their consumption habits. Many religions such as Islam, Buddhism, and Hinduism forbid or discourage alcohol consumption. However, there is no clear relationship between religion and beer consumption as people can vary in their religious practices. In our global study spanning 70 countries, 7% of the population follows Islam. The country with the largest number of Muslims as a share of its population is Indonesia (85%), followed by Malaysia (58%), Nigeria (43%), Ivory Coast (39%), and Tanzania (29%).[13] Of those countries, all except Malaysia are within in the lower income group while Malaysia is considered as an upper middle income country. Malaysia's consumption per capita is ranked the lowest among its peers, which reinforces the hypothesis that, beyond income level, religion plays an important role in people's decision to consume alcoholic beverages.[14]

5.2 FACTORS INFLUENCING BEER CONSUMPTION

Within the alcohol market, there exist several categories of beverages, including beer, wine, spirits, cider, and RTD beverages. Some key factors driving beer consumption in the context of broader alcohol consumption are competition from unrecorded alcohol, consumer tastes, and beer's relative price.

5.2.1 Size of the unrecorded market

The illicit market might provide consumers with cheaper alternatives, causing them to switch away from beer.[15] We have shown that the unrecorded alcoholic beverage market is relatively larger in lower income countries, hence cheaper alcoholic beverages tend to be readily available in these countries. Moreover, according to research conducted by Euromonitor's

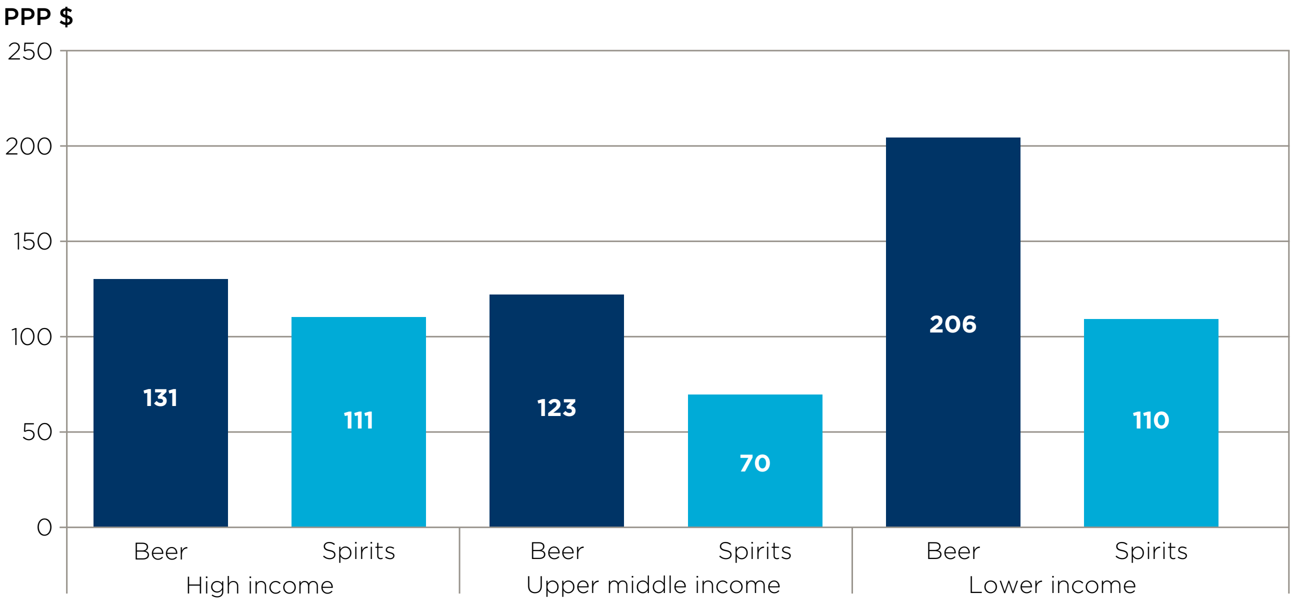
[13] World population review, "Muslim population by country", data downloaded December 2023.
[14] Ana Patricia Silvia et al., "Cheers, proost, saude: Cultural, contextual and psychological factors of wine and beer consumption in Portugal and in the Netherlands" Critical Reviews in Food Science and Nutrition. 75 no.7 (2017) 1340-1349, accessed December 2023.
[15] It is also important to note that for the purpose of this study, and due to data limitations, we estimated the size of unrecorded alcoholic beverages by assuming it had the same composition as the recorded market. Since our estimate of the unrecorded alcoholic beverages market involves comparing the recorded and unrecorded pure alcohol consumption, and distilled products have a higher pure alcohol content, this might lead to overestimating the beverage volume share of unrecorded beverages.

study in 2018, covering the composition of the illicit market across 24 countries from 2011-2017, beer accounted for only 10% of illicit alcoholic beverage consumption.[16] In contrast, distilled products constituted 81% of the illicit alcohol market. With the illicit market being mostly distilled products, spirits could be relatively cheaper than beer in some countries, causing people to switch from (licit) beer to illicit spirits. In fact, the negative relationship between per capita beer consumption and the size of the illicit alcohol market is somewhat apparent in the 24 countries studied in the Euromonitor report.

5.2.2 Consumer tastes and preferences

Due to habit formation in consumer preferences, it might be difficult to encourage consumers to switch to beer completely. While beer is the most popular alcoholic beverage worldwide, its consumption varies substantially across countries. Some high-income countries consume beer and wine equally while countries like Italy and France prefer wine over beer. In several lower income countries in Africa, consumers prefer local alcoholic beverages, like in Rwanda where beverages such as Urwagwa, Ikigage, and Kanyanga, made from cereals and bananas.[17] Similarly, Uganda has a strong preference for beverages like *tonto* which is made from banana, *kweete* from maize and millet, and waragi from molasses.[18] Furthermore, consumer preferences are influenced by other factors such as gender, age group, and individual taste buds.[19]

Fig. 10: Prices of a litre of pure alcohol, by type and by country income group (2019)



Source: World Health Organization, Oxford Economics

[16] Euromonitor, 2018, "Size and Shape of the Global Illicit Alcohol Market", accessed December 2023. The report uses the latest-year data from 2011 to 2017 for 24 countries in Latin America, Africa, and Eastern Europe. Out of these 24 countries, 20 countries overlap with the scope of our study, and of these, 9 fall into the lower income group.

[17] Francois Lyumugabe and Emmanuel Baygana Songa, "15 - Traditional Fermented Alcoholic Beverages of Rwanda (Ikigage, Urwagwa, and Kanyanga): Production and Preservation" *Preservatives and Preservation Approaches in Beverages*, Academic Press, 15 (2019) 511-523, accessed December 2023.

[18] Patrick Mwesigye and Tom Okia Okurut, "A Survey of the Production and Consumption of Traditional Alcoholic Beverages in Uganda" *Process Biochemistry*, 30 no.6 (1995) 497-501, accessed December 2023.

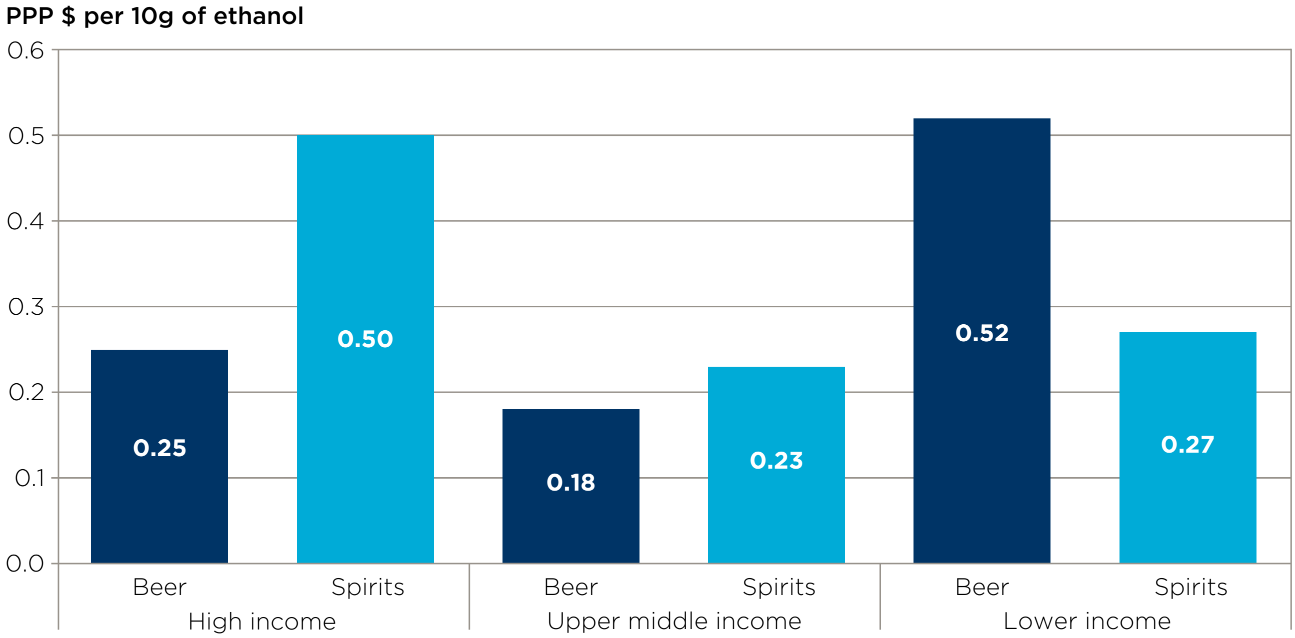
[19] Alexander Bachmanov et al., "Chemosensory Factors Influencing Alcohol Perception, Preferences, and Consumption" Alcoholism: clinical and Experimental Research, 27 no.2 (2006) 220-231, accessed December 2023. and Maria Carla Cravero et al, "Profiling Individual Differences in Alcoholic Beverage Preference and Consumption: New Insights from a Large-Scale Study" Food 9 no.8 (2020) 1131, accessed December 2023.

5.2.3 Relative prices and excise duties

After adjusting for the alcohol content and the volume of beer and spirits, beer is more expensive than spirits across all three country income groups when we focus on pure alcohol.[20] Comparing the relative prices of a litre of pure alcohol, the difference is largest in lower income countries, as each litre of pure alcohol for beer is on average 2.8 times more expensive than its counterpart for spirits, whereas the ratio is just 1.2 in high income countries.[21] There are substantial variations across countries, but 14 countries (out of the 17 lower income countries with available data) have a higher beer-to-spirits price ratio. The differences between relative prices will be amplified once we take the unrecorded market into account. As mentioned, the illicit market is mostly distilled products, which implies the illicit spirits could be relatively cheaper than (licit) beer in some countries, causing people to substitute away from (licit) beer.

Aside from being more expensive, beer is also taxed more in lower income countries compared to spirits when measured on excise duty by ethanol content.[22] Excise duties are indirect taxes applied on the sale or use of specific products, which are normally recovered by the producer or seller who pays the levy by raising the price faced by final consumers. Excise duties can be of different types—volume-based specific excise, alcohol-content-based specific excise, and ad valorem excise.[23] Lower income countries levy an average of 2.8 times more excise duties per 10g of ethanol for beer compared to for spirits. This implies that beer, which has a lower concentration of ethanol, is actually taxed at a higher rate compared to spirits in lower income countries. This situation differs when looking at high and upper middle income countries, where excise duties by ethanol content are lower on beer than on spirits.

Fig. 11: Excise tax for beer and spirits by country income group (2019)



Source: World Health Organization, Oxford Economics

[20] Note that the analysis in this section does not cover all 70 countries as the World Health Organization does not have price and excise duty data for Austria, France, Luxembourg, United States, India, Lesotho, Nigeria, Vietnam, Botswana, Malaysia, and Russia.
[21] World Health Organization, "The price of alcoholic beverages", data downloaded December 2023.
Oxford Economics, "Exchange rate, period average, PPP" Global data economics databank, data downloaded December 2023.
The PPP price of a litre of pure alcohol is calculated by adjusting the price of the most sold brand of beer and spirits of each country by its volume and by its ABV percentage.
[22] This is done by first scaling the total excise duty imposed on beer and spirits by the price of a litre of pure alcohol (adjusted for volume and ABV percentage), then converting the pure alcohol volume to ethanol content. As suggested by World Health Organization, an ethanol density of 0.789 g/ml is assumed.
[23] World Health Organization, "Taxes on alcoholic beverages", data downloaded December 2023.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6. CONCLUSIONS AND FUTURE RESEARCH RECOMMENDATIONS

As the most popular alcoholic beverage across all country income groups, beer generates and supports large economic contributions in all parts of the world. The beer sector is especially important to lower income countries, where it supports larger shares of the economy—in 2019, the beer sector supported, on average, 1.6% of GDP across lower income countries, compared to 0.9% in high income countries. Nevertheless, beer consumption tends to be lower in lower income countries compared to the rest of the world; the average person in lower income countries consumes only one third of the beer consumed by their counterparts in high income countries. Despite lower prices and the lower levels of consumption, consumers in lower income countries allocate a larger share of their disposable income to beer compared to individuals across other income groups. This indicates beer is comparatively less affordable in lower income countries.

Based on observed consumption patterns, we conclude that beer behaves as a "luxury good" in lower income economies, with demand increasing disproportionally as income rises. This is in contrast to high income countries, where beer behaves as a commodity or "normal good", with demand being relatively less sensitive to income.

In this study, we demonstrated that the beer sector has the potential to make even larger economic contributions in lower income countries if consumption were to increase. Using our counterfactual scenario based on lower income countries with higher levels of beer consumption per capita, we estimate that such an increase in beer consumption (by shifting consumption to beer from other alcohol) could increase the sector's total gross value added contributions across lower income countries from an average of 1.6% to 2.2% of GDP ($71 billion) in 2019. In our approach, we cap the potential of the beer sector to grow to the broader alcohol market size. This is because religious beliefs and cultural norms, among other factors, will tend to influence overall consumption of alcohol independently of choices between different beverage categories.

While this analysis indicates the beer sector could increase its impact, we also considered the likely barriers to increasing beer consumption in lower income countries, including unrecorded (illicit) alcohol consumption, consumer preferences, and relative prices. We showed that market conditions in lower income countries—characterised by the presence of large unrecorded alcohol markets and disproportionally higher relative prices of beer—might encourage consumers towards a higher consumption of unrecorded alcohol and recorded spirits, compared to richer countries. Taxation by ethanol content being higher on beer than on spirits in lower income countries is a likely key factor in explaining relative prices differences across country income groups. However, consumers' choices do not only depend on prices. Consumer preferences could imply that in certain countries spirits, wine, and other alcoholic beverages are more popular than beer.

This paper serves as a first attempt to provide stakeholders with an in-depth analysis on the patterns and impacts of beer consumption in lower income countries. There is however much left to explore in relation to this topic, including:

- The overall macroeconomic impact of increased beer consumption on the economy—in this paper, we provided estimates on the gross impact on demand of increased domestic consumption of beer. However, we did not take into account macroeconomic dynamics; such analysis would require different modelling techniques, such as computerised general equilibrium models.
- Tax efficiency—using data from the World Health Organization, we showed that, on average, excise duties by ethanol content on beer are higher than those on spirits in lower income countries. It is arguable whether this is efficient or not. A study assessing tax frameworks for alcohol could shed some light on this topic.
- Impact of unrecorded alcohol consumption—in this study, we showed the relevance of unrecorded alcohol consumption and its likely impact on prices. Future studies could assess the value of the unrecorded market and its detrimental impact on the economy, helping governments formulate policies to reduce the size of unrecorded market.
- Causal relationships—while we explored beer consumption patterns and their likely drivers, we cannot use observation alone to indicate causality. This could be further investigated using a detailed econometric model.

APPENDIX

6.1 BEER'S CONSUMPTION OVER TIME

While this report's analysis was conducted mainly using 2019 data, beer consumption patterns have remained relatively stable over time. In 2022, average beer consumption as a percentage of household disposable income was 3.3% and 1.5% across lower income and high income countries respectively, compared to 3.4% and 1.6% in 2019. Meanwhile, average per capita consumption in high countries in 2022 was about three times as large as average per capita consumption in lower income countries (83 litres vs 27 litres), compared to 85 litres and 28 litres in 2019.

6.2 MODELLING FRAMEWORK

6.2.1 Modelling assumptions and limitations

While beer is the most popular alcoholic beverage across all countries, people in lower income countries spend less on beer and consume lower quantities than individuals across high income and upper middle income countries.

In 2019, per capita spending on beer averaged $67 across lower income countries, less than a sixth of average per capita spend across high income countries. It is, however, unrealistic to assume that people in lower income countries will start spending as much as their counterparts in high income ones, unless their income levels converge at a higher level and therefore lower income countries are no longer part of this category.

Within the lower income group, large variations exist. Looking at the higher end of the distribution, people in Bolivia and Cambodia spent on average $243 and $126 per capita on beer in 2019, respectively. Spending in these countries was higher than 90% of the countries in the lower income group. We can assume average per capita consumption across all lower income countries to align with the identified 90th percentile (i.e., $126 per capita).

While this might be plausible for many countries, it might be highly unrealistic for some countries, where, for example, prevailing religious beliefs or social norms mean that people are not willing to drink alcoholic beverages.

To overcome this, we consider the whole alcoholic beverage industry of both recorded and unrecorded consumption and set that as a threshold to our assumption in consumption increase. Finally, we ensure that none of the assumed per capita consumption will be lower than the original per capita consumption. The overarching assumption is that people can switch all their alcoholic consumption to beer but will not increase their total consumption of alcoholic beverages.

6.2.2 Transmission mechanisms of the counterfactual exercise

We estimate the additional contribution that could be supported by the beer sector in lower income countries if people could spend more on beer.

- **Direct impact**—the economic activities of businesses and organisations within the beer sector itself. Any rise in per capita spending would directly result in a corresponding increase in beer sales revenue and, therefore, in downstream businesses' direct impact. When beer sales rise, businesses in the downstream value chain such as retailers and hospitality venues must buy more beer. They can either source it locally or from foreign brewers. For a given country, the increase in brewers' direct impact is driven by the share of beer that is locally produced.

- **Indirect impact**—economic contribution supported by brewers and downstream businesses as they buy inputs of goods and services from their suppliers. To grow revenue, brewers and downstream businesses need to produce and sell more. This means they will buy more inputs of goods and services from their suppliers, leading to greater indirect impacts. In our exercise, the rise in indirect impact in a given country is driven by the share of brewers' and downstream businesses' procurement sourced from local businesses.
- **Induced impact**—the economic contribution stimulated by the beer sector through wage funded consumption in the consumer economy by employees of the beer sector itself and its supply chain. The change in induced impact is closely tied to both direct and indirect impacts.

Fig. 12: Percentage increase in per capita consumption, total gross value added and total employment

Country	% increase in per capita consumption	% increase in total gross value added impact	% increase in total employment impact
Bolivia	0%	0%	0%
Cambodia	0.94%	0.83%	0.75%
DRC / Congo-Kinshasa	92%	66%	57%
El Salvador	66%	51%	50%
eSwatini / Swaziland	17%	12%	12%
Ethiopia	98%	93%	91%
Ghana	105%	103%	102%
Honduras	0%	0%	0%
India	296%	287%	286%
Indonesia	151%	72%	67%
Ivory Coast	119%	106%	106%
Lesotho	48%	33%	29%
Mozambique	115%	100%	97%
Myanmar	14%	11%	10%
Nigeria	56%	50%	48%
Rwanda	25%	19%	16%
Sri Lanka	64%	46%	45%
Tanzania	60%	57%	56%
Uganda	94%	90%	89%
Ukraine	72%	68%	68%

Source: Oxford Economics

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The modelling and results presented here are based on information provided by third parties, upon which Oxford Economics has relied in producing its report and forecasts in good faith. Any subsequent revision or update of those data will affect the assessments and projections shown.

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