OXFORD ECONOMICS

WORLD BREWING ALLIANCE






BEER'S GLOBAL ECONOMIC FOOTPRINT

FEBRUARY 2025

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FOREWORD

Brewers have been at the heart of local communities for centuries—sourcing ingredients, developing quality products, and delivering a social and cultural experience. Over time, the success of these local partnerships has propelled many brewers from local to national and eventually to international scale. This is the unique quality of beer: it is a local product that connects a person to a particular culture and people even when enjoyed in other parts of the world. Beer is a local business with global reach and relevance.

This report by Oxford Economics, commissioned by the World Brewing Alliance (WBA), explores beer's total global economic contribution in detail. While many previous studies exist for individual countries, this study provides a rigorous, coherent estimate of the global impact with the same metrics at the same moment. Nor have they fully considered elements of international trade, like the importance of barley and hops from certain countries. What is apparent from the report is the positive role that beer plays in the economy.

This study demonstrates that brewing is a highly productive activity, with contributions of human capital into the wider economy. It underpins jobs and GDP throughout local communities both upstream and downstream. And while the impact is large everywhere, it is greatest in lower-income countries where development is important to rising incomes. Our commitment to the long-term success of our communities spans economic, social, and environmental development. Beer is a perishable product that remains close to its agricultural roots and depends on local storage and distribution to get to consumers. Even as consumers' love for beer has created an international industry, the total global impact remains concentrated locally at the national level in each country, meaning that beer plays a positive role in social development.

As the lowest-strength alcohol option for consumers, beer can be part of the solution for reducing the harmful use of alcohol. Innovative products like no-alcohol beer and brand-led messaging can empower and encourage consumers to make responsible choices. In addition, we are investing to minimise water use, energy consumption, and CO_2 emissions within breweries and across the extended supply chain. At the heart of this global impact are brewers themselves. When Covid-19 caused unprecedented disruption in the global economy, it became apparent how central we, as brewers, are to the success of our communities. We stepped forward to support a value chain running from agriculture and distribution to retail and hospitality that was disproportionately hurt by the restrictions the pandemic response required. At a moment when the global economy seems to be on the cusp of recovering, "Beer's Global Economic Footprint" highlights our potential to invigorate the economy through our core work. Brewers aren't just building back. We have the ambition to build forward. We aim to leverage our role as brewers, employers, and partners to continue to add value to our communities and society. This report strengthens the foundation to move that vision forward.

Justin Kissinger
President & CEO
World Brewing Alliance

Beer's global economic footprint
OXFORD ECONOMICS

GLOSSARY

The following terms are used throughout this report:

Beer sector: The brewers, beer distributors, retailers, and hospitality firms.

Brewers: the companies which brew beer, including in-house business operations associated with brewing such as marketing, accounting, purchasing, and logistics.

Compensation of employees: The total cost of labour, including wages/salaries/benefits in cash and in kind, income taxes, and social contributions by both employees and employer.

Currency values: All currency values mentioned in this report are US dollars measured at 2023 prices and exchange rates, unless otherwise specified.

Direct: The economic activity that brewers, beer distributors, retailers, and hospitality firms (the beer sector) generate at their operational sites.

Downstream value chain: The distributors, retailers, and hospitality firms that get beer into final consumers' hands.

Gross Domestic Product (GDP): GDP is the most commonly used metric to describe the size and health of an economy. It is the total value of final goods and services produced in the economy within a year. After adjustments for taxes and subsidies, the sum of all gross value added created by all firms and industries in an economy is equal to GDP.

Gross Value Added (GVA): Gross value added for an individual brewer, beer distributor, retailer, or hospitality firm is equal to the revenue it generates in a year less the cost of the bought-in goods and services used up to generate that revenue. Gross value added can also be calculated as the sum of those firms' EBITDA and compensation of employees. After adjustments for taxes and subsidies, the sum of all gross value added created by all firms and industries in an economy is equal to GDP.

Off-trade beer sales, or retail sales: Sales of beer that is consumed off the premises of the seller, i.e., supermarkets, grocery stores, specialty retailers, and local convenience stores (sometimes called corner shops, mom & pop stores, or traditional trade, depending on the country).

On-trade beer sales, or hospitality sales: Sales of beer that is consumed on premises at restaurants, bars, pubs, clubs, sports arenas, etc.

Productivity: Gross value added generated per person employed.

Supply chain (indirect): The economic activity that the beer sector supports in the supply chain by purchasing inputs of goods and services from suppliers, such as farmers, bottler manufacturers, and shippers.

Supply chain investments: The capital spending by the beer sector's suppliers. For instance, a farmer producing hops for a local brewery may purchase new machinery, or a distributor may invest in a new fleet of vehicles, as a result of the revenue they receive from the beer sector.

Upstream value chain: Businesses in the beer sector's supply chain, and associated onward supply chain linkages, which provides its inputs of goods and services (such as raw agricultural products, manufactured bottles and kegs, or glassware and pouring equipment for bars)

Wage-induced: The economic activity the beer sector stimulates by paying its staff wages and supporting wages along the supply chain.

EXECUTIVE SUMMARY

$878 billion

Total global GDP contribution of the beer sector in 2023.

This was equivalent to $1 in every $119 of global GDP.

86%

of brewers' supplier spending was with businesses local to the country of production.

For every $1 million in direct GDP generated by the global brewers, a further $8 million in GDP was supported by the beer sector.

The beer sector is truly global, and involves a range of organisations responsible for brewing, marketing, distributing, and selling beer to millions of adults of drinking age across the world. In carrying out these activities, businesses stimulate a significant economic footprint across the global economy. This study, commissioned by the World Brewing Alliance, assesses the global economic footprint of the beer industry in 2023.

THE GLOBAL BEER SECTOR'S CONTRIBUTION TO GDP

We estimate the global beer sector supported a total contribution to GDP of $878 billion in 2023. This was equivalent to 0.8% of global GDP, or $1 in every $119 of global GDP.

Just over 43% (or $379 billion) of the global beer sector's contribution to GDP was sustained by the brewers. This comprised a $98 billion **direct** contribution to GDP by the brewers—the value generated at their breweries and offices; mostly through creating the drinks themselves, but also marketing and selling them. The remaining $281 billion was supported by their upstream operational and capital **supply chains**, and the **wage-induced** spending of people employed by the brewers and their supply chain.

Beyond its global reach, the brewers also support significant economic activity in the local communities in which they operate. For example, almost nine-tenths (86%) of all the brewers' supplies were purchased from businesses in the country of production.

The beer sector's **downstream value chain** supported the remaining $499 billion contribution to global GDP (or 57% of the total) from the process of selling beer—including distributors, retailers, and hospitality venues—their supply chains and the wage-induced impacts, generating further economic activity.

The total GDP impact of the beer sector ($878 billion) was nine times the direct GDP impact of the brewers alone ($98 billion), meaning its GDP multiplier was 9.0. In other words, for every $1 million in GDP directly generated by the global brewing industry, its expenditure on inputs, wages, and the economic activity from the sale of beer, stimulated a further $8 million in GDP across the global economy in 2023.

BEER'S IMPACT ON THE GLOBAL LABOUR MARKET AND GOVERNMENT REVENUES

We estimate that the global beer sector also supported an estimated 33.0 million jobs—or one in every 100 jobs. This comprised 11.9 million jobs supported by the global brewers across all channels of impact. With 620,000 staff directly employed by the brewers, a further 11.2 million jobs were supported along their supply chains and across the global consumer economy through their expenditure.

The remaining 21.2 million jobs were sustained through the downstream value-chain, including an estimated 9.4 million jobs directly at on-trade and off-trade outlets themselves.

The global brewers' workforce is also highly productive. These workers had an average productivity of just over $157,000 per worker, as measured by GDP contribution per worker.[1] This is roughly five times as productive as the global average.[2] This high productivity reflects both the capital intensity of brewers, as well as the skilled jobs that brewers offer, including in brewing, engineering, legal, marketing, accounting, and finance roles.

The beer sector is also estimated to have supported a total of $376 billion in global tax revenues. Around 43% of this total, or $163 billion, comprised sales tax (including both excise duties and VAT) paid on the purchase of beer. This is in addition to the corporation, labour, and other taxes paid and supported by the brewers and the downstream value chain.

THE BEER SECTOR'S IMPORTANCE IN DEVELOPING ECONOMIES

The global beer sector supports a sizeable economic footprint across the globe. **But its economic importance is most pronounced in developing economies.** The beer sector's total contribution to GDP as a share of the national GDP total averaged 1.5% in low- and lower-middle-income countries in 2023.[3] This is almost double its contribution to GDP in high-income countries (an average of 0.8% of national GDP). In part, this reflects how consumers in lower-income countries tend to allocate a larger share of their disposable income to beer compared to individuals across other country income groups, despite having lower consumption volumes per person.

33.0 million

Jobs supported by the global beer sector.

This was equivalent to one in every 100 jobs globally.

$376 billion

Global tax revenues supported by the beer sector in 2023.

1.5%

The average share of national GDP supported by the beer sector in lower income countries in 2023.

[1] This measure of labour productivity is calculated as the direct contribution to GDP for the brewers ($98 billion) divided by the headcount (620,000).
[2] Global average labour productivity is calculated as the sum of global GDP divided by the global workforce across all sectors of the economy.
[3] These income groupings are based on World Bank, World Bank Country and Lending Groups. The shares of GDP are calculated only for the core 76 countries included in this study, and therefore exclude the rest of the world estimates. The average is calculated using the median average for the countries in each of the groupings.

Our analysis also demonstrates that low- and lower-middle-income countries have been a driving force behind the global beer sector's economic footprint since 2015. **This income grouping has seen a 27% boost (in constant 2023 prices) in the contribution to GDP between 2015 and 2023, and a 24% boost in the employment supported.** By contrast, higher-income counties have seen a 7% and 0.4% dip in their contribution to GDP and employment, respectively, over the same period—reflecting the dip in beer production volumes in high income countries between 2015 and 2023.

6.4 million

Agricultural jobs supported by the global beer sector in 2023. Brewers spent $10.6 billion on agricultural raw materials.

THE BEER SECTOR'S REACH ACROSS THE INDUSTRIAL SPECTRUM

Given the vast scale of the beer sector's economic footprint, an array of industrial sectors benefit from the operations of the global brewers and the downstream value-chain. Indeed, our analysis shows around 70% of both the beer sector's employment footprint and contribution to GDP is witnessed in industries in the sector's supply chain and those supported in the consumer economy.

The largest employment impacts were sustained in the agriculture sector, with 6.4 million jobs in this industry attributable to the beer sector, equivalent to around one in every five jobs supported by the global beer sector. The main driver of this was the procurement spending of the brewers—who spent $10.6 billion with agricultural suppliers in 2023—as farmers grew nearly 120,000 metric tons of hops, as well as 57 million metric tons of barley. In total, the beer sector supported a $38 billion contribution to global GDP in the agriculture sector.

The largest GDP impacts, however, were supported in the wholesale and retail and business services sectors in 2023, with a $94 billion and $70 billion contribution to GDP, respectively.[4] Not only do these sectors supply goods and services to the beer sector, but they appear prominently in its suppliers' subsequent operational and capital purchases of inputs of goods and services further down the supply chain. For instance, the activity in business services represents demands for engineering and legal services that are integral to delivering capital investments.

[4] This contribution to GDP in the wholesale and retail sector is in addition to the $80 billion contribution in the direct downstream value chain off-trade (for instance, including supermarkets and convenience stores).

INTERACTIVE MICROSITE OF RESULTS

For further country-by-country detail and sectoral breakdown of results, readers are directed to our interactive microsite of results. Here users can explore the data at both global and individual country level over a number of years. This includes an ability to delve into the detailed analysis for each individual country by separating out the brewers and downstream value chain from the beer sector as a whole and, within that, to explore the breakdown between the direct, wage-induced, and supply chain impacts. For example, it is possible to see the impact of the global beer sector to the agriculture sector in Argentina in 2023 and compare it with other impacts from various sectors in the same country.

HOW WE REACH THE GLOBAL ECONOMIC FOOTPRINT OF THE BEER SECTOR

Fig. 1: Building up the beer sector's global contribution to GDP

Brewers' global economic footprint		Downstream value chain's global economic footprint		Beer sector's global economic footprint
The activity associated with brewers and their expenditure—including upstream suppliers in the agricultural sector and elsewhere, but excluding the activity in the downstream value chain (beer sales in the distributors, retailers, and hospitality sector).	+	The activity supported by the sale of beer in the distribution, wholesale, retail, or hospitality sector—including its subsequent expenditure.	=	The sum of its two constituent parts: the brewers and beer's downstream value chain.
DIRECT: The GDP generated directly at breweries and offices, as brewers purchase raw materials and sell beer at a marked-up price to distributors and wholesalers. **$98 billion**	+	**DIRECT:** The GDP generated directly at distribution, wholesale, retail, or hospitality outlets as they purchase beer from brewers and sell at a marked-up price to consumers. **$160 billion**	=	**GDP: $258 billion**
SUPPLY CHAIN (INDIRECT): The GDP generated along the brewers' global supply chain through their purchase of inputs goods and services upstream with suppliers, including farmers and bottle manufacturers. **$131 billion**	+	**SUPPLY CHAIN (INDIRECT):** The GDP generated along the downstream value chain's global supply chain as they purchase the of inputs goods and services they require to sell beer, such as renting facilities, pouring equipment or refrigerators. **$130 billion**	=	**GDP: $261 billion**
WAGE-INDUCED: The GDP generated in the consumer economy as those employed by the brewers and their upstream suppliers spend their wages. **$74 billion**	+	**WAGE-INDUCED:** The GDP generated in the consumer economy as those employed at distribution, wholesale, retail, or hospitality outlets and their upstream suppliers spend their wages. **$114 billion**	=	**GDP: $189 billion**
SUPPLY CHAIN INVESTMENTS: The GDP generated along the brewers' global supply chain as their procurement spending facilitates suppliers making capital investments, such as new farming equipment or bottle manufacturing machinery. **$76 billion**	+	**SUPPLY CHAIN INVESTMENTS:** The GDP generated along the downstream value chain's global supply chain as their procurement spending facilitates suppliers making capital investments. **$95 billion**	=	**GDP: $171 billion**
TOTAL: $379 billion	+	**TOTAL: $499 billion**	=	**TOTAL: $878 bn**

Beer's global economic footprint
OXFORD ECONOMICS

THE GLOBAL BEER SECTOR'S ECONOMIC FOOTPRINT

$878 billion
Beer sector's total contribution to global GDP.

$1 in every **$119** of global GDP contributed by the beer sector.

For every **$1 million** in direct GDP generated by the global brewers, a further **$8 million** in GDP was supported by the beer sector.

33.0 million
Global jobs supported by the beer sector...

...One in every 100 jobs globally.

$376 billion
Global tax revenues sustained by the beer sector...

...including **$163 billion** in beer sales tax.

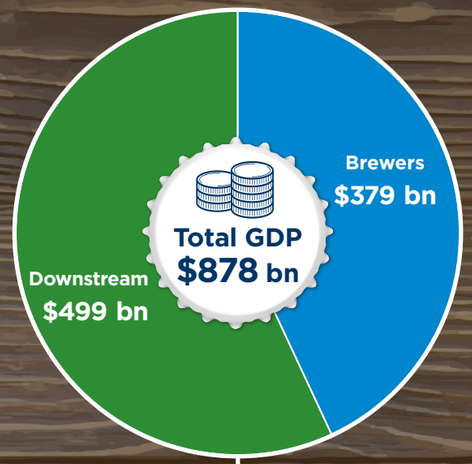
LOWER INCOME COUNTRIES — **1.5%** — The average share of national GDP supported by the beer sector in low- and lower-middle-income countries in 2023, compared to **0.8%** in high income countries.

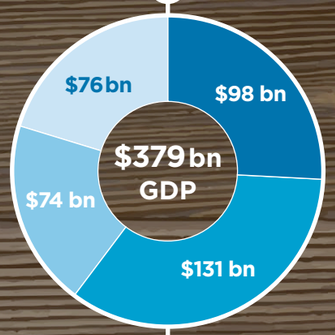
LOCAL ECONOMIES — **86%** — of brewers' supplier spending was with businesses local to the country of production.

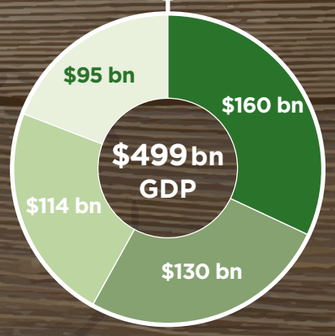
KEY SECTORS — **6.4 million** — agricultural jobs supported across the globe. Brewers spent **$10.6 billion** on agricultural raw materials.

Full country results available at our **interactive microsite**.

GDP IMPACT







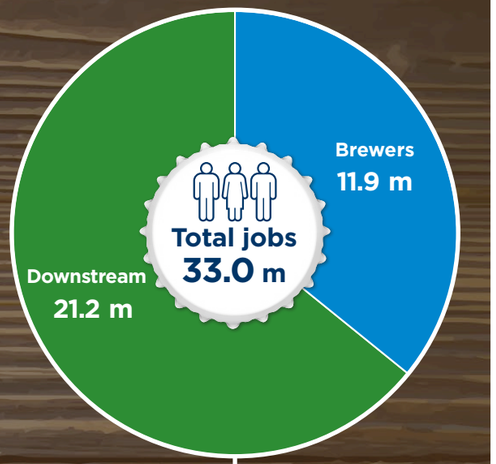
Brewers

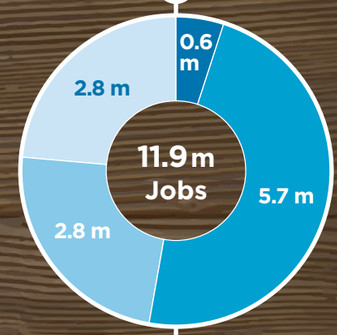
- Direct
- Supply Chain
- Wage-induced
- Supply Chain Investments

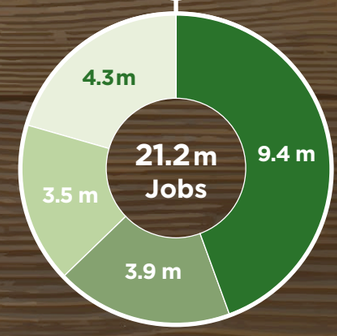
Downstream Value Chain

- Direct
- Supply Chain
- Wage-induced
- Supply Chain Investments

EMPLOYMENT IMPACT







TAX IMPACT

Brewers $86 bn + **Downstream value chain** $126 bn + **Beer sales tax*** $163 bn = **Total** $376 bn

* Including excise and VAT.

Note: Subtotals may not sum to totals due to rounding.

1. INTRODUCTION

From crop to consumer, the beer sector spans the global economy. Beer is first and foremost an agricultural product. The brewing process starts with farmers in countries including Germany, the United States, China, Argentina, France, and South Africa, who cultivated more than 60,000 hectares of land across the world to grow nearly 120,000 metric tons of hops in 2023, as well as 57 million metric tons of barley.[5]

Brewers located in nearly every country across the world embark on the brewing process, utilising decades, and sometimes centuries, of expertise to produce a wide array of beers, packaged in bottles, can, kegs, and barrels, that were purchased locally or imported from specialist manufacturers.

When the beer is ready, a mass of distributors, transporters, and logisticians step into action to transport beer to retailers, wholesalers, and hospitality outlets, which provide beer to consumers for purchase at a location convenient to them. This process is aided by a raft of professionals, marketing and selling beer across the world.

Both brewers and downstream businesses have their own supply chains required to facilitate their production and sale of the beer: hop farmers purchase fertilisers and machinery; transport companies invest in new commercial vehicles; and can manufacturers purchase aluminium. This spending therefore continues to circulate around the economy.

Moreover, hundreds of thousands of workers are directly employed by the beer sector. These workers—along with the millions of people employed in the beer sector's supply chain—earn wages that they then spend in both their local economies and the consumer economy across the world.

We therefore have a virtuous cycle of economic activity happening each and every day across the globe, attributable to the beer sector.

1.1 INTRODUCTION TO THIS REPORT

This study is an update and expansion to the analysis previously conducted by Oxford Economics which measured the global beer sector's economic footprint between 2015 and 2019. We now quantify this economic footprint in the year 2023, as well as examining how this footprint has evolved since 2015.

There are two key changes to this year's study. First, this study measures the expanded global economic footprint of the beer sector. Alongside our country-level analysis for 76 countries (which account for 90% of global GDP, 87% of beer sales, and 89% of beer production), we have added an estimate of the rest of the world activity in a further 109 countries.[6] This rest of the world addition is new for this updated study, and provides us with an estimate of the global footprint of the beer sector covering 100% of the global economy.

Second, the methodology has been expanded to give a wider view of impact. Specifically, our analysis now quantifies the impact of capital expenditure occurring in the beer sector's supply chain as a result of its spending with suppliers when determining its total economic footprint. This is referred to as the supply chain investments channel of impact throughout this report.[7]

[5] Barth Haas, Barth Haas Report 2023/2024
[6] Our 76 country-level analysis now includes Egypt, Turkey, Japan, Thailand, New Zealand, Chile, and Uruguay, which were not included in our previous study. However, we have removed Russia relative to our previous study.
[7] Standard economic impact assessments generally do not include net capital expenditure in the supply chain, and therefore only consider the operational expenditure on inputs of goods and services required to produce the products they supply. Adding gross fixed capital formation to the input-output model allows us to capture the additional spending on capital investments that occur as a result of the sector's supply chain spending. Where we presented the time series in this this report, any historical results for 2015 and 2019 are also presented on this updated basis, and in constant 2023 prices and exchange rates, so any comparisons over time are like-for-like basis to aid comparability.

1.2 INTRODUCTION TO ECONOMIC IMPACT ANALYSIS

In this study, we define the beer sector as the brewers themselves plus their downstream value chain, formed by the wholesalers, retailers, restaurants, bars, pubs, clubs, and sports arenas that distribute beer to final consumers. This scope is chosen to capture the full impact of the beer sector—both upstream and downstream.

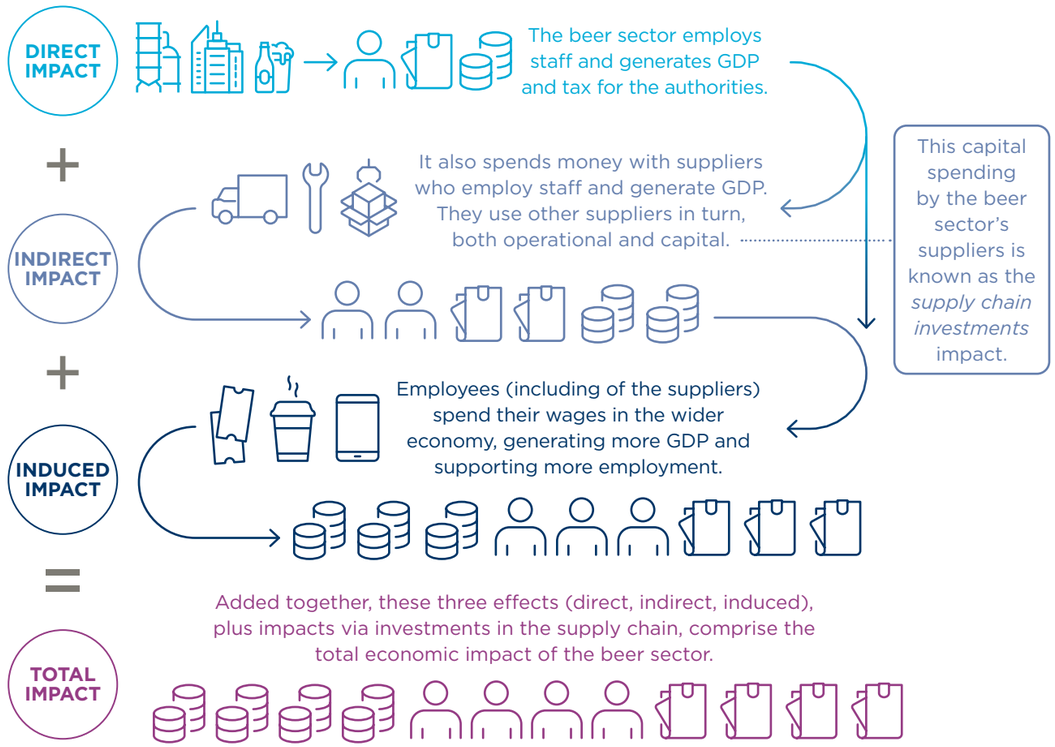
This study quantifies economic footprint from the production and sales of beer across the world in 2023 across four channels:

1. **Direct impact**, which is the economic activity that involves making and physically handing beer to consumers—from the brewing process, to distributing beer to wholesalers and retailers, and physically handling beer at restaurants, pubs, arenas, and other hospitality venues (the beer sector).
2. **Supply chain (indirect) impact**, which is the economic activity the beer sector supports along its supply chain. This includes the economic activity supported when brewers and downstream businesses purchase goods and services from suppliers such as farmers, bottle manufacturers, and shippers, as well as the subsequent activity stimulated across the global value chain with suppliers who help to facilitate the beer sector's purchases.
3. **Wage-induced impact**, which is the economic activity in the consumer economy stimulated by the combined wages of the staff in the beer sector and the supported staff in the supply chain.
4. **Supply chain investment impact**, which is the economic activity triggered by capital expenditures occurring in the beer sector's supply chains as a result of the production and sale of beer. For instance, a farmer producing hops for a local brewery may purchase new machinery, or a distributor may invest in a new fleet of vehicles.

These four channels of impact sum to make the beer sector's total economic footprint.[8]

[8] The results of this study are presented on a gross basis. This means that the results do not control for any displacement of activity from the beer sector's competitors. They do not consider what the resources currently used in supporting the sector's economic footprint could otherwise be productively diverted to. The study also does not cover unrecorded beer sales coming from illicit and informal production.

Fig. 2: How we measure the beer sector's economic impact



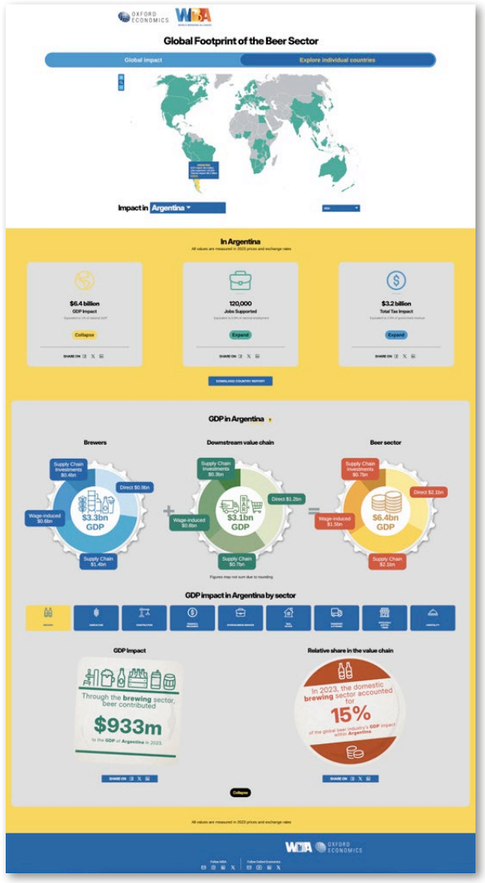
In quantifying the beer sector's economic footprint, we use three metrics of economic activity:

- Gross value added contribution to GDP (hereafter "contribution to GDP"), measured in US dollars for cross-country comparability;
- Employment, measured as the number of jobs in headcount terms; and
- Tax revenue for governments, including personal and business income taxes, excise and other sales taxes, social security contributions, and other taxes on production, measured in US dollars.

Our approach captures economic activity stimulated across the world through the cross-border trade linkages of producing and selling beer. While most economic impact studies assess these effects based only on spending that occurs within the country of interest, this report goes further by assessing the impact of beer's global activities on each economy using Oxford Economics' **Global Sustainability Model (GSM).** This is a more comprehensive approach that is suited to sectors with a global footprint, such as the beer sector, and highlights the international nature of its supply chain. A detailed methodology discussion is in the annex to this report.

1.3 INTERACTIVE MICROSITE OF RESULTS

For further country-by-country detail and sectoral breakdown of results, readers are directed to our interactive microsite of results. Here users can explore the data at both global and individual country level over a number of years. This includes an ability to delve into the detailed analysis for each individual country by separating out the brewers and downstream value chain from the beer sector as a whole and, within that, to explore the breakdown between the direct, wage-induced, and supply chain impacts. For example, it is possible to see the impact of the global beer sector to the agriculture sector in Argentina in 2023 and compare it with other impacts from various sectors in the same country.



1.4 LAYOUT OF THE REMAINDER OF THIS REPORT

The remainder of this report is structured as follows:

- Section 2 sets out the global economic footprint of the total beer sector, encompassing both brewers' and beer's downstream value chain;
- Section 3 focuses on the brewers' economic footprint;
- Section 4 highlights the economic footprint of the beer sector's downstream value chain; and
- The Annexes to this report provide additional information on the country results, 2023 results versus the historical years, plus details the sources and methods used to create the estimates in this report.

2. THE BEER SECTOR'S GLOBAL ECONOMIC FOOTPRINT

The global beer sector comprises not just the activity associated with brewers and their expenditure, but also the distributors, retailers, and hospitality sector involved in selling beer to consumers. In this section we present the total economic footprint of the beer sector summed across these two constituent parts, before highlighting their individual economic footprint in more detail in the following sections.

$878 billion

The beer sector's total contribution to global GDP, along with a total of 33.0 million jobs supported.

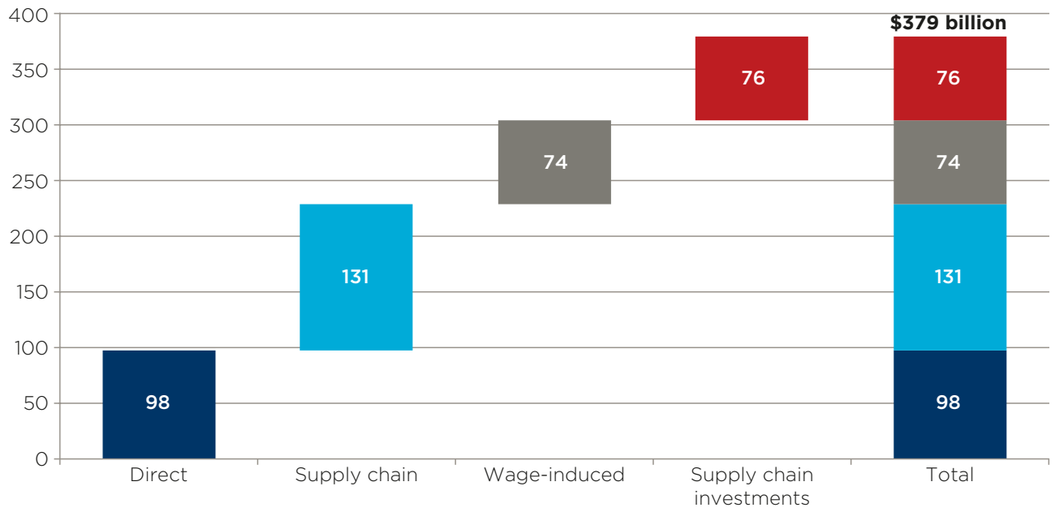
2.1 AN OVERVIEW OF THE GLOBAL ECONOMIC FOOTPRINT

We estimate the global beer sector supported a total contribution to GDP of $878 billion in 2023. This was equivalent to 0.8% of global GDP, or $1 in every $119 of global GDP.

Of this total, $379 billion—or 43%—was associated with the global brewers. This figure included a $98 billion **direct** contribution to GDP. This is the value generated at their breweries and offices; mostly through creating the drinks themselves, but also marketing and selling them. The remaining $281 billion are supported by the brewers' upstream operational and capital supply chains, as well as wage-induced spending, including, for instance, the activity they support through purchasing hops and barley from the agricultural sector, or bottles, cans, and kegs from manufacturers. Fig. 3 outlines how this footprint is split by channel of impact. This is discussed in more detail in Section 3.

The remaining 57% (or $499 billion) was associated with the downstream value chain—which includes the economic activity supported by the distributors, retailers, wholesalers, and hospitality firms involved in the sale of beer to consumers. This is investigated further in Section 4.

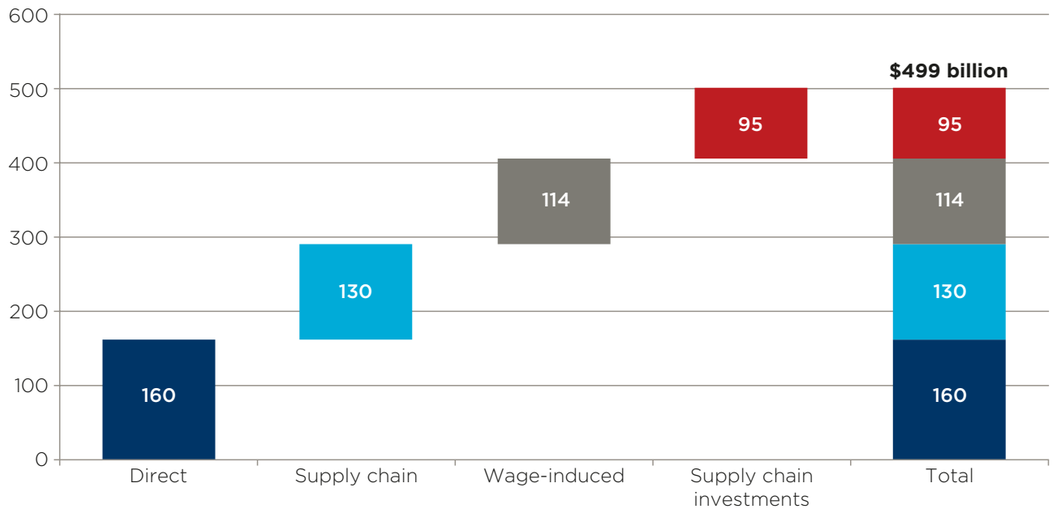
Fig. 3: Brewers' total contribution to global GDP in 2023



Source: Oxford Economics

Note: totals may not sum due to rounding.

Fig. 4: Downstream value chain's total contribution to global GDP in 2023

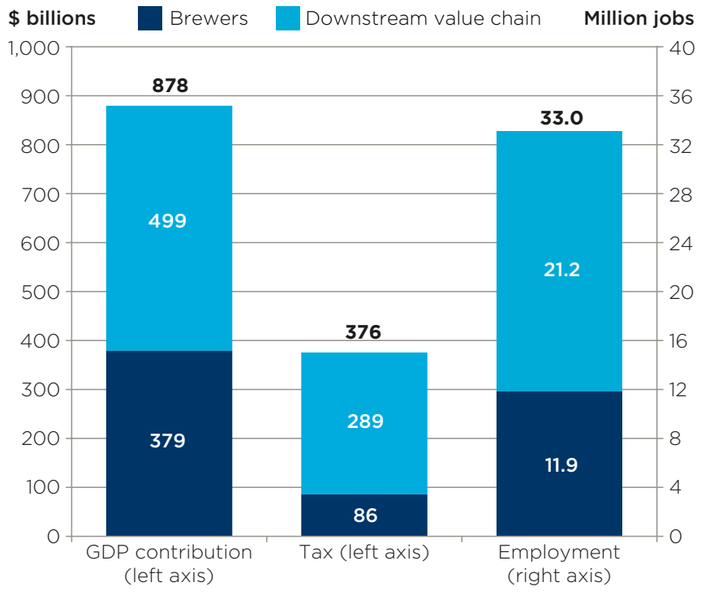


Source: Oxford Economics

Note: totals may not sum due to rounding.

Since the total GDP impact ($878 billion) was nine times the direct GDP impact of the brewers alone ($98 billion), we can say that the global beer sector had a GDP multiplier of 9.0. In other words, for every $1 million in GDP directly generated by the global brewing industry, their expenditure on inputs, wages, and the activity from the sale of beer stimulated a further $8 million in GDP across the global economy.

Fig. 5: The global beer sector's total economic footprint in 2023



Source: Oxford Economics

Note: totals may not sum due to rounding.

We estimate the global beer sector also supported 33.0 million jobs—or one in every 100 jobs across the world. We estimate 620,000 staff were directly employed by global brewers. So, in this case, the employment multiplier was 53: for every worker employed by the brewers themselves, an additional 52 jobs were supported across downstream activities, in supply chains, or in the consumer economy.[9] The higher employment multiplier, relative to the GDP multiplier, is stimulated by the high productivity of the global brewing industry, in turn supporting more jobs, on a relative basis, in other parts of the global economy. Indeed, workers in the global brewing industry had an average productivity of around $157,200 in 2023, as measured by the GDP contribution per worker.[10] This was nearly five times the global average.[11]

52 jobs

For every worker employed by the brewers themselves, an additional 52 jobs were supported across downstream activities, in supply chains, or in the consumer economy.

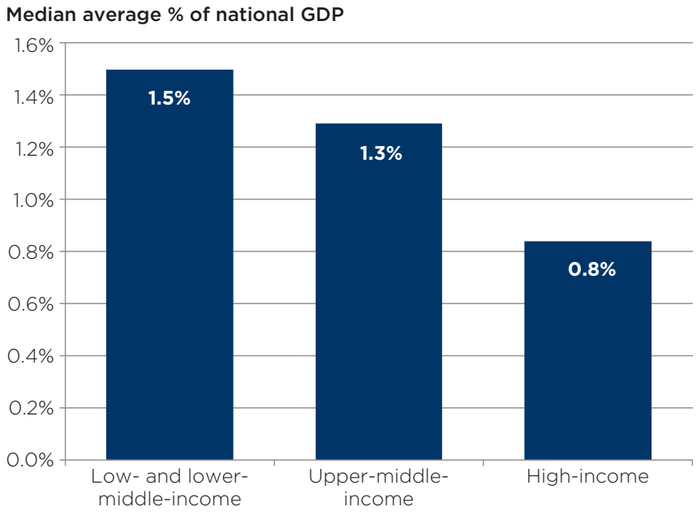
The beer sector is also estimated to have supported a total of $376 billion in global tax revenues. Around 43% of this total, or $163 billion, comprised the sales tax (including both excise duties and sales tax) paid on the purchase of beer by distributors, with the remainder including corporation, labour, and other taxes paid and supported by the brewers and the downstream value chain.

2.1.1 The beer sector's impact in lower-income countries

Lower-income economies have been key drivers of the sector's global growth over the past decade and support a larger share of economic value. By grouping the "core countries" by income level and using the World Bank classifications, we see that the beer sector's economic importance—as measured by its total contribution to GDP as a share of the national GDP—averaged 1.5% in these low- and lower-middle-income countries in 2023.[12] This is almost double its contribution to GDP in high-income countries (an average of 0.8% of national GDP).

Our analysis reveals the productivity of the brewers' workforce is higher relative to the average worker in the lower-income countries. The brewers' generated $117,000 of GDP per worker—a measure of productivity—in the lower-income countries, which was 18.3 times the average worker. While the GDP per worker generated by the brewers' workforce in upper middle-income ($120,200) and high-income countries ($238,200) was higher, this was 5.4 times and 2.2 times the average worker, respectively.

Fig. 6: Share of national GDP supported by the beer sector in 2023 by income grouping

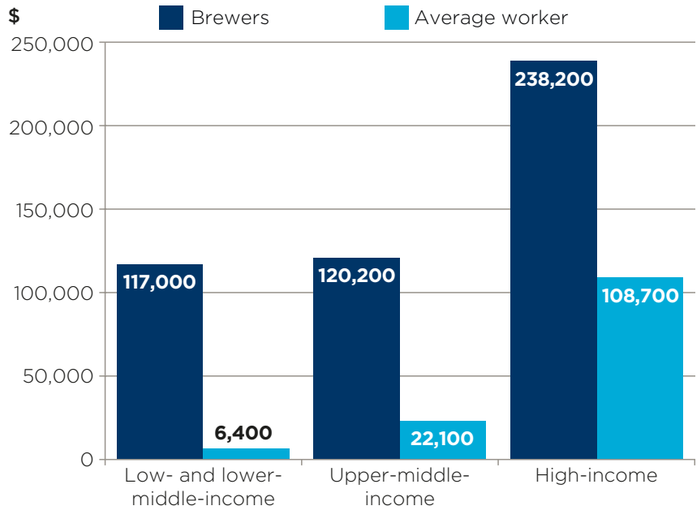


Source: Oxford Economics

Beer consumption increases with income. The average person in lower-income countries consumes only one-third of the beer consumed by their counterparts in high-income countries. But these consumers in lower-income countries allocate a larger share of their disposable income to beer, despite lower levels of consumption, relative to higher income countries.[13]

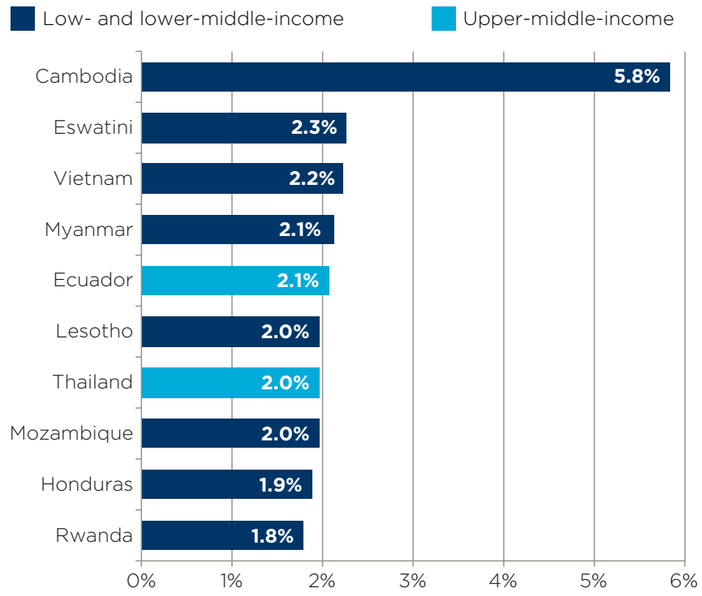
Of the 10 countries that made the largest relative contribution when measured as the beer sector's total impact as a share of national GDP, eight were lower-income countries (Fig. 8). Notably, in Cambodia, the beer sector's share of national GDP was 5.8% in 2023, due to the relatively high beer consumption of 107 litres per capita (in contrast to the broader trend observed above for lower-income countries, which is the only income grouping to average below the global figure of 37 litres per capita). This was followed by Eswatini (2.3%) and Vietnam (2.2%).

Fig. 7: GDP per worker (productivity) in 2023 by income grouping



Source: WBA, Oxford Economics

Fig. 8: Total GDP supported by the beer sector as a share of national GDP in 2023, top 10 countries



Source: Oxford Economics

[9] For every worker employed by the brewers, there are a further 42 jobs in downstream activities or in the upstream supply chain (direct, indirect channels, and supply chain investment channels of impact). If we consider all four channels of impact, for every worker employed by the brewers, there are an additional 52 jobs in the downstream value chain, in the supply chains, or in the consumer economy.

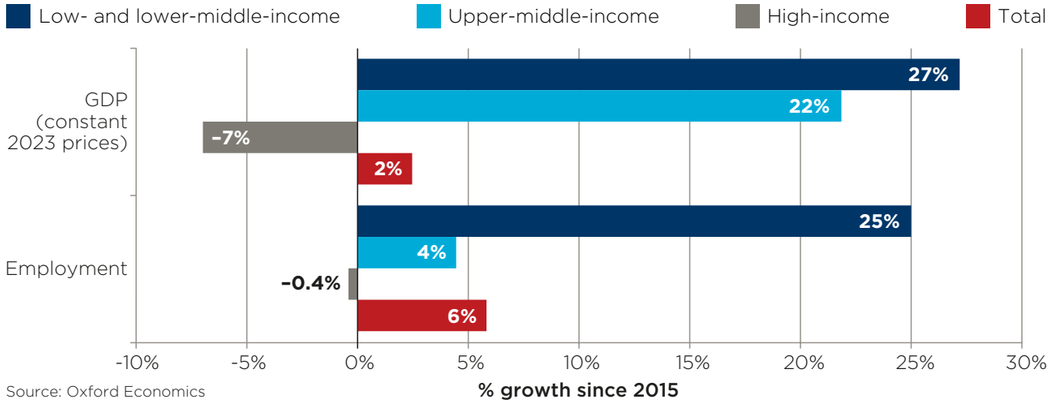
[10] This measure of labour productivity is calculated as the direct contribution to GDP (employment costs and profits) divided by the headcount.

[11] Global average labour productivity is calculated as the sum of global GDP divided by the global workforce across all sectors of the economy.

[12] World Bank, World Bank Country and Lending Groups. The average is calculated using the median average for the countries in each of the groupings.

[13] Oxford Economics, The economic contribution of beer in lower income countries

Fig. 9: Total economic impact growth versus 2015 by country income level



Source: Oxford Economics

Our analysis also demonstrates that low- and lower-middle-income countries have been a driving force behind the global beer sector's economic footprint since 2015. As shown in Fig. 9, these countries witnessed a 27% boost (in constant 2023 prices) in the contribution to GDP between 2015 and 2023, and a 24% boost in the employment supported. By contrast, higher income counties have seen a 7% and 0.4% dip in their contribution to GDP and employment, respectively over the same period. This reflects the decrease in beer production volumes in high income countries between 2015 and 2023.

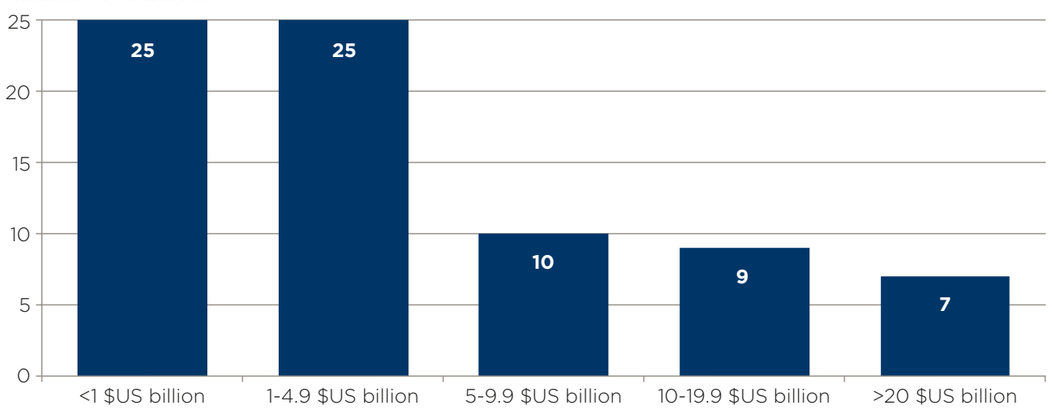
2.1.2 The distribution of beer's global economic footprint

The global dispersion of the beer sector's economic footprint is grouped by different bandings of the GDP contribution in the "core countries", as summarised in Fig. 10. Around two-thirds of the "core countries" (or 51 countries) had a contribution to GDP of less than $5 billion in 2023. In total, these markets accounted for 8% of the global beer sector's contribution to GDP, which was in line with their collective share of global GDP.

Conversely in seven countries—the United States, China, Germany, Brazil, the United Kingdom, Japan, and Mexico—the beer sector's contribution to GDP was over $20 billion. These seven markets represented 56% of the global beer sector's GDP contribution, and 58% of global whole-economy GDP.

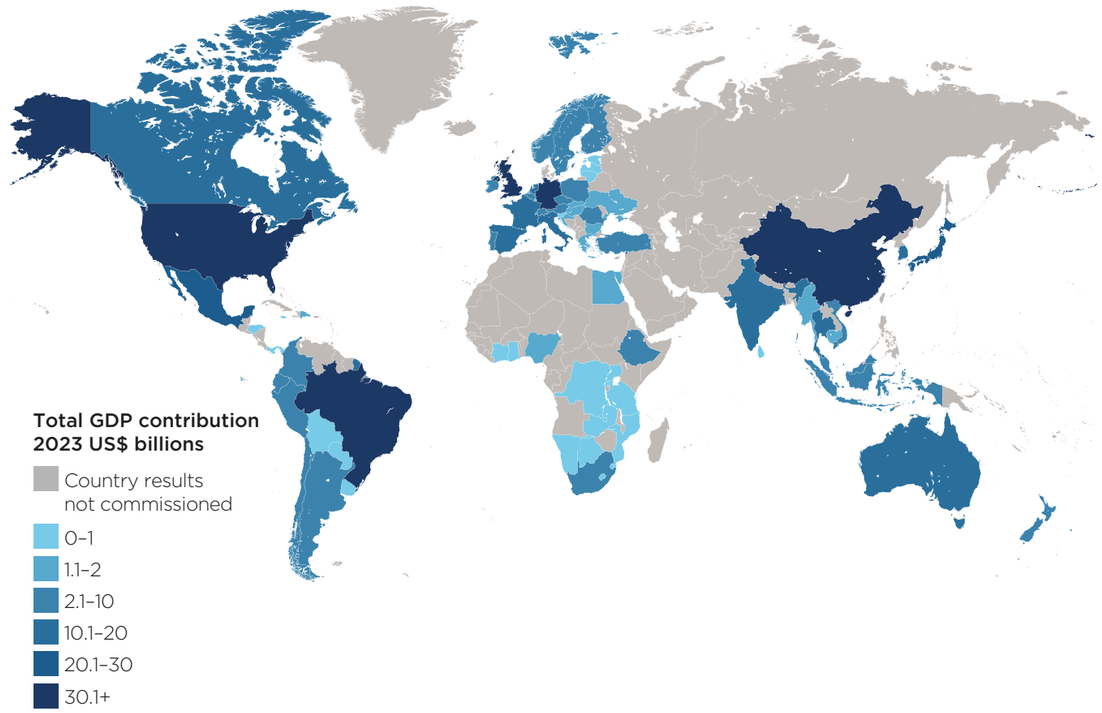
The make-up of these markets in part reflects the relative size of these economies around the world. For instance, the United States and China—the world's two largest economies—also accounted for the largest absolute contribution to GDP, shown in Fig. 11. Notably, in Brazil and Mexico, the global beer market witnessed strong growth in recent years, and accounted for 1.5% and 1.3% of whole-economy GDP in each of the respective markets—relative to the 0.8% share of global GDP from the global beer sector. This was driven by strong domestic consumption—with 101 litres per capita consumed in Mexico, and 84 litres per capita in Brazil, compared to a global average of 37 litres per capita. In Mexico's case, it was also driven by its relative export intensity: as the world's largest exporter of beer in 2023, some 42% of the beer it produced, by value, was exported.

Fig. 10: Distribution of beer sector's total GDP contributions in 2023



Source: Oxford Economics

Fig. 11: The beer sector's total contribution to GDP by country in 2023



However, our analysis reveals the impact of the beer sector was not always linked to the market size of the brewers themselves. Below we explore the statistics for three markets in Europe, by way of illustration.

- **France**, for instance, consumed 1.1% of the world's beer in 2023. However, the country also exported $1.1 billion worth of supplies to global brewers outside of the country—28% of which was agricultural raw materials. This was equivalent to 6.4% of the global brewers' spending with international suppliers (i.e., non-domestic purchases).

- **Bulgaria** only consumed 0.3% of the world's beer in 2023. But global brewers purchased $576 million worth of supplies from Bulgarian companies, equivalent to 3.5% of their total spending with international suppliers. Nearly three-quarters of these purchases comprised manufactured glass products.

- **Slovakia**, similarly, consumed around 0.2% of the world's beer. But Slovakian businesses exported $180 million worth of supplies to international brewers (1.1% of their spending with international suppliers), of which 52% was manufactured products (predominantly glass and manufactured metal products) and 17% was produce from the agricultural sector.

2.2 KEY INDUSTRIAL SECTORS SUPPORTED BY THE BEER SECTOR

Given the vast scale of the beer sector's economic footprint, an array of industrial sectors benefit from its operations. These are the sectors along the beer sector's supply chain, which receive its spending, or that of its suppliers, as well as sectors supported by wage-induced spending.

The contribution to GDP by industry is shown in Fig. 12. This is split into those which comprise the **direct** footprint of the global beer sector—brewers, downstream value chain on-trade (for instance bars, restaurants, and pubs), and downstream value chain off-trade (including supermarkets and convenience stores)—and the industries supported by the expenditure and wage payments of these direct sectors. This includes sectors supplying key products to brewers and downstream establishments.

For the brewers, key suppliers include the agriculture sector for hops and barley; bottle, can, and keg manufacturers to provide vessels for the beer; and the professional services sector for legal, accounting, and market research services, for instance. For the downstream value chain, this might be rent on their facility, pouring equipment or refrigerators, or on advertising services—all required to facilitate their sale of beer.

Wages are spent on rent and housing by employees, as well as in the consumer economy, such as on groceries and clothes in retail outlets, amongst other things.

Focusing on the industries supported by the spending of these direct sectors, the largest impacts were supported in the wholesale and retail, and business services sectors in 2023. The total contribution to global GDP sustained in these sectors was $94 billion and $70 billion, respectively.[14] Not only do these sectors supply goods and services to the beer sector, but they appear prominently in its suppliers' subsequent purchases of inputs of goods and services.

The beer sector also supported a $54 billion contribution to GDP in the real estate sector. The main drivers of this were the downstream value chain's spending with suppliers, as on-trade and off-trade establishments rented the facilities they require to sell their beer, and due to the wage-induced spending of employees on housing.

[14] This contribution to GDP in the wholesale and retail sector is in addition to the $80 billion contribution in the direct downstream value chain off-trade.

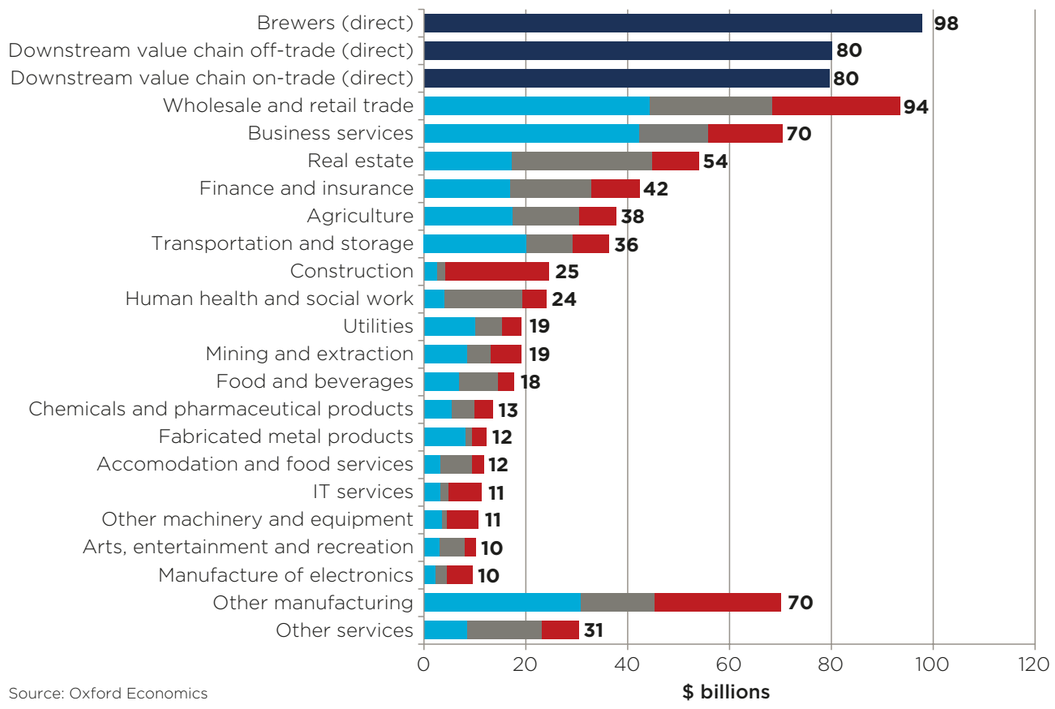
Driven primarily by its procurement of the hops, barley, and any other produce required to brew its beer, the beer sector supported a $38 billion contribution to GDP in the agriculture sector. This is discussed in more detail in section 3. Finally, the $25 billion contribution to GDP in the construction sector was predominantly driven by the capital investments supported along the beer sector's supply chain.

Contrary to the GDP impact by industry, the agriculture sector had the greatest employment impact of any sector. The beer sector supported 6.4 million jobs across the global agriculture sector in 2023, with just under one-third of these jobs sustained by global brewers' spending with suppliers. The difference between the rankings of the GDP and employment impacts for agriculture in Fig. 12 and Fig. 13 reflects the higher labour intensity of agriculture on a global basis, relative to other industries.

A further 4.8 million jobs were supported in the wholesale and retail sector. The beer sector's employment impact is more concentrated than its GDP impact, with the agriculture, and the wholesale and retail sectors accounting for 49% of the further employment supported (excluding its direct impacts).

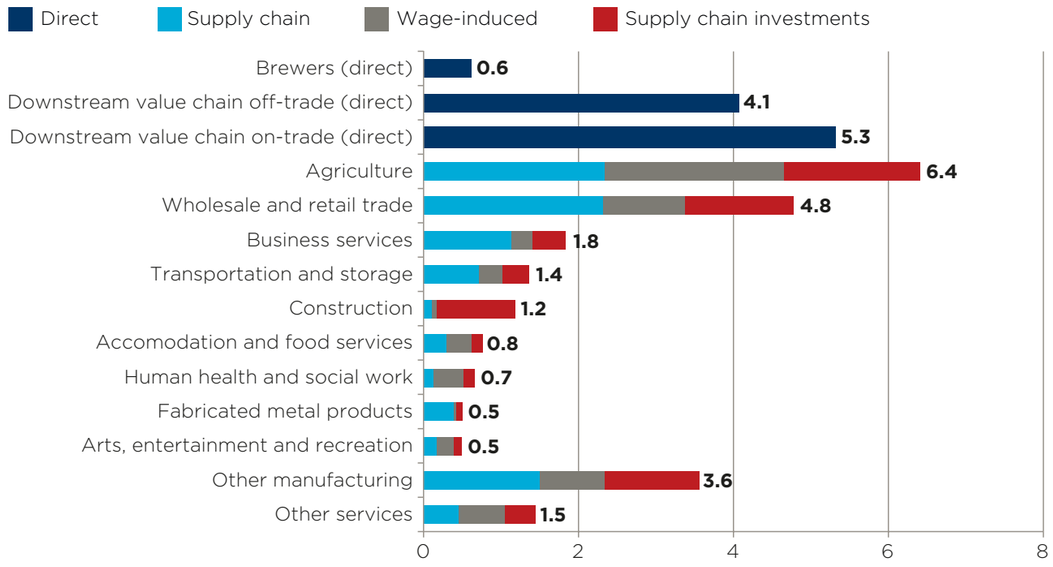
Finally, some 1.8 million and 1.4 million jobs were supported in the business services sector, and transportation and storage sector, respectively.

Fig. 12: Beer sector's total contribution to GDP in 2023 by industrial sector



Source: Oxford Economics

Fig. 13: Beer sector's total employment impact in 2023 by industrial sector



Source: Oxford Economics

3. BREWERS' GLOBAL ECONOMIC FOOTPRINT

The activity of the global brewing industry supported a $379 billion contribution to global GDP. As the global beer sector—which includes both brewers and its downstream value chain—supported a total contribution to global GDP of $878 billion in 2023, this means the brewers' contribution made up almost half (43%) of the beer sector's total.

$379 billion

The total contribution to global GDP supported by the brewers in 2023, along with 11.9 million jobs supported.

This total includes their own direct contribution to GDP, along with the activity sustained through their supply chain (indirect), wage-induced, and supply chain investment impacts (Fig. 14). However, it does not include the activity in their downstream value chain from the process of selling beer—which is captured in Section 4. The brewers also supported a total of 11.9 million jobs in 2023, along with $86 billion in tax payments for governments globally both directly paid and supported in 2023.

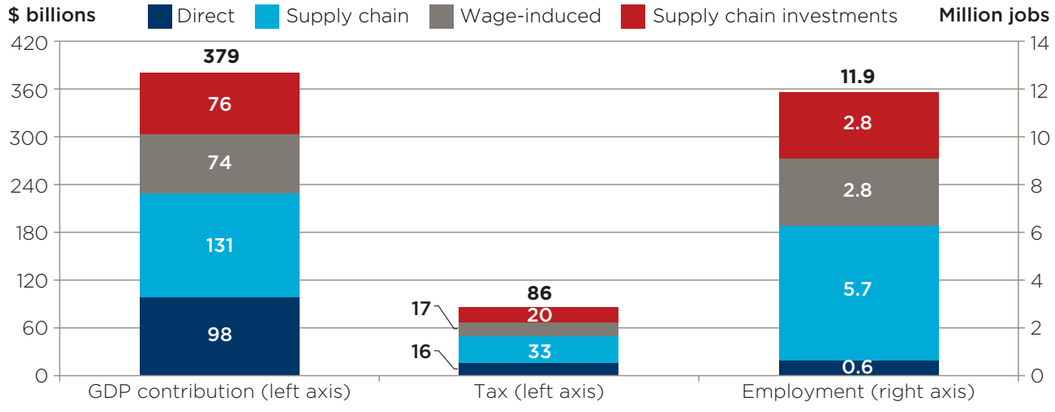
The majority of this contribution to GDP (86%) was sustained in the "core countries", as outlined in the introduction to this report, whilst the remaining 14% of impacts took place within economies across the rest of the world.

3.1 BREWERS' DIRECT IMPACT

In 2023, we estimate that brewers earned $229 billion in revenues globally. This income was generated by manufacturing and selling beer to the downstream value chain, including distributors, retailers, and hospitality firms. In turn, these firms sell beer to consumers—the economic footprint of which we explore in Section 4.

The day-to-day activities of the brewers consist not only of brewing, but also the wider business operations associated with brewing, such as marketing, accounting, purchasing, and logistics. Brewers' direct contribution to the global economy relates to the activities they carry out at their breweries and offices, and for which they are directly responsible. Creating the drinks themselves is the most obvious example, but it also includes marketing and selling them. Other internal supporting functions, such as accounting, finance, and logistics also come under the aegis of brewers' direct impact.

Fig. 14: The brewers' total economic footprint in 2023



Source: Oxford Economics

Note: totals may not sum due to rounding.

By manufacturing and selling beer to the downstream value chain, we estimate the brewers directly contributed $98 billion to global GDP in 2023 and employed an estimated 620,000 staff. The global brewers' workforce is highly productive. These workers had an average productivity of $157,200 per worker, as measured by the GDP contribution per worker.[15] This productivity was 4.9 times the global average.

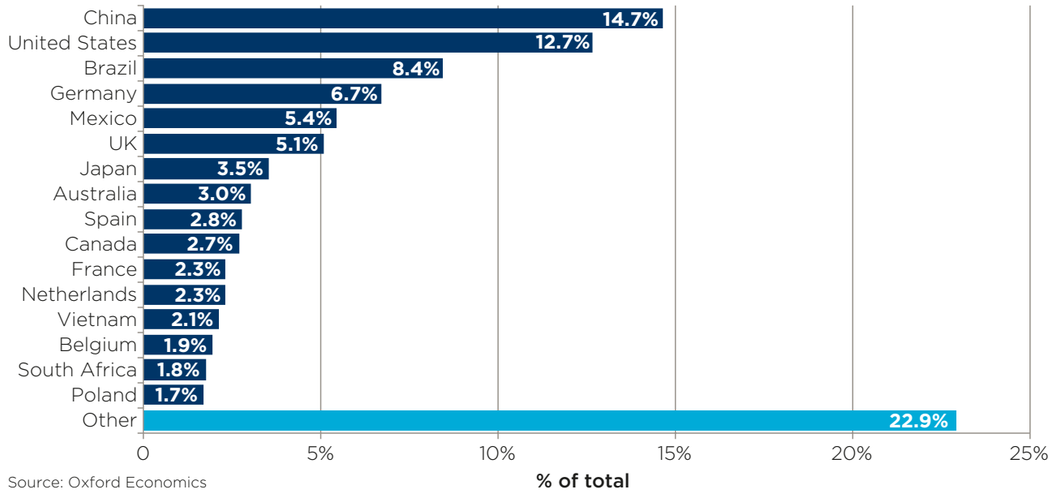
This high productivity is a function of both the capital intensity of brewers and the skilled jobs that brewers offer, including in brewing, engineering, legal, marketing, accounting, and finance roles. Having highly productive workers is important because it boosts the price competitiveness of beer and supports wider economic growth. This is through, for instance, spillover effects as brewers interact with their suppliers and downstream customers. Productivity is also a key determinant of living standards in the long term, as it drives higher wages and therefore purchasing power and consumption.

In addition, the global brewers and their employees paid governments an estimated $16 billion in taxes (excluding the beer sales tax they collect, which is captured in the downstream value chain's footprint) in 2023.

3.2 BREWERS' SUPPLY CHAIN (INDIRECT) IMPACT

In order to produce, package, and market their beer products, brewers undertake purchases with a myriad of upstream suppliers around the globe in the course of their day-to-day operations. For instance, brewers purchase hops and barley from farmers; purchase bottles, cans, and cardboard packing from manufacturing firms; and spend money with professional service firms to support their business operations and marketing. The activity sustained in beer's downstream value chain—whether that is in distribution, wholesale, retail, or hospitality—is outlined in Section 4, and not captured here.

Fig. 15: The countries which benefitted from brewers' spending with suppliers, 2023[16]



Source: Oxford Economics

[15] This measure of labour productivity is calculated as the direct contribution to GDP (employment costs and profits) divided by the headcount.

[16] Please note figures 15, 16, and 17 are representative of the estimated procurement of brewers in the selection of 76 core study countries, and do not include procurement of the rest of the world countries.

We estimate that the brewers collectively spent $131 billion with third-party suppliers across the world in 2023. Using data from major brewers, paired with national statistics and available market data, we estimate $103 billion—or 86% of total procurement of the inputs of goods and services—was sourced domestically. The remaining $16 billion (14%) was spent with international suppliers (located in a different country to the brewers).

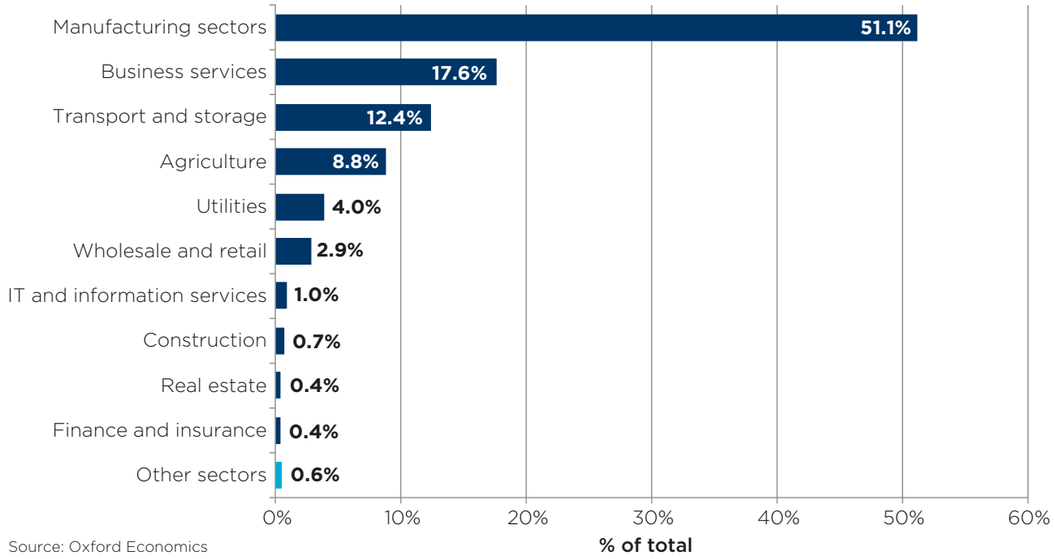
86% of brewers' supplier spending was with businesses local to the country of production.

By country, just over 50% of the brewers' total global procurement spending was with suppliers in just six countries: China (15%), the United States (13%), Brazil (8%), Germany (7%), Mexico, and the United Kingdom (5% in each).

By sector, the manufacturing sectors received the largest share of the brewers' supply chain spending (51%). This was followed by the business services sector (18%), which includes legal, marketing, accounting, and other key professional services ancillary to the brewing process, and the transportation and storage sector (12%). The agriculture sector from which the brewers purchase their raw materials, remained a key supplier, and received 9% of their total procurement spending. The central role agriculture plays in supporting the brewers is outlined further below.

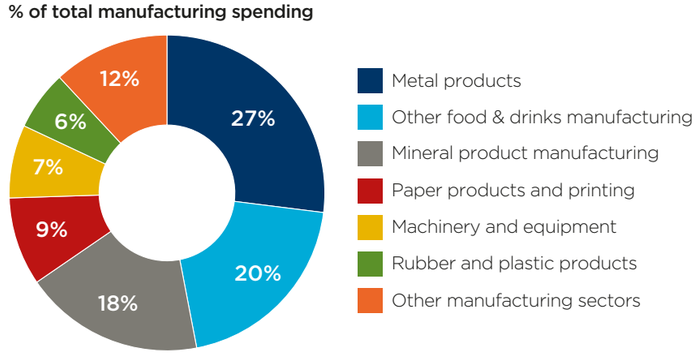
As shown in Fig. 17, just over a quarter of the brewers' spending with manufacturing sectors took place with firms in the metal products sector, from which the brewers purchase packaging materials. Each of the brewers' suppliers require inputs of goods and services of their own, and those suppliers then purchase from their suppliers. These additional rounds of supply chain activity are captured in our modelling.

Fig. 16: Types of businesses that benefitted from brewers' spending with suppliers, 2023



Source: Oxford Economics

Fig. 17: Brewers' spending with manufacturing suppliers by manufacturing sub-sector, 2023



Source: Oxford Economics

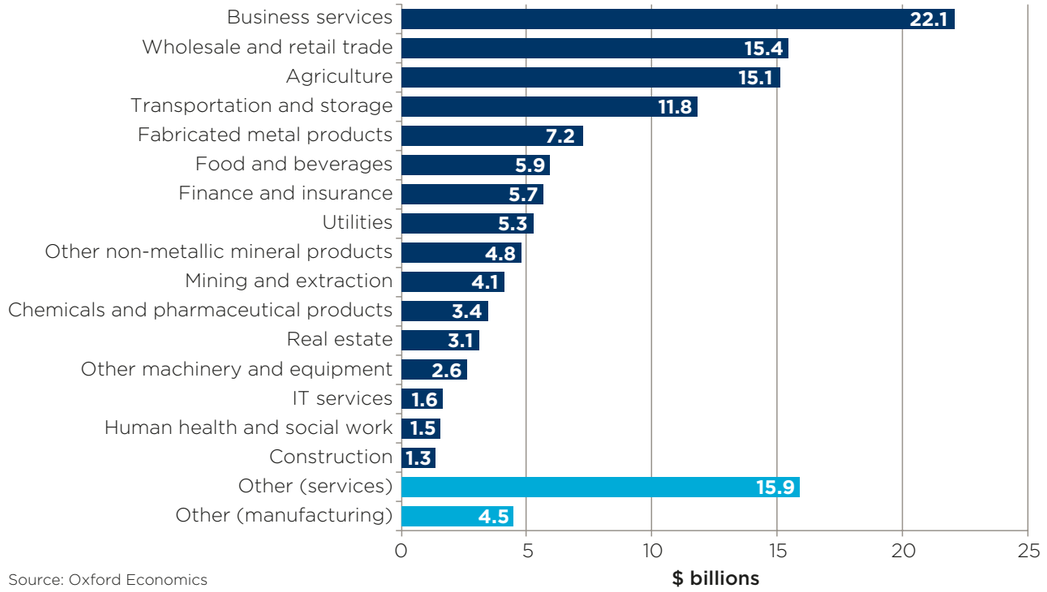
Note: totals may not sum due to rounding.

By mapping brewers' total expenditure and the subsequent activity they support further up the supply chain, we estimate that the brewers supported a $131 billion indirect contribution to global GDP in 2023. This activity was associated with a further 5.7 million jobs along the brewers' supply chain, and $33 billion in tax payments.

This is estimated using Oxford Economics' Global Sustainability Model (GSM), which captures the spend pattern of the subsequent rounds of supply chain activity, as mentioned above, based on the brewers' initial procurement spending.

The sectoral distribution of the brewers' supply chain (indirect) GDP contribution largely reflects the distribution of the brewers' purchases. For instance, the brewers' supply chain activity supported $22 billion in the business services sector, followed by $15 billion in both the agriculture, and wholesale and retail sectors, respectively.

Fig. 18: Supply chain contribution to GDP of the brewers by sector, 2023



Source: Oxford Economics

THE BREWERS' AGRICULTURAL SUPPLY CHAIN

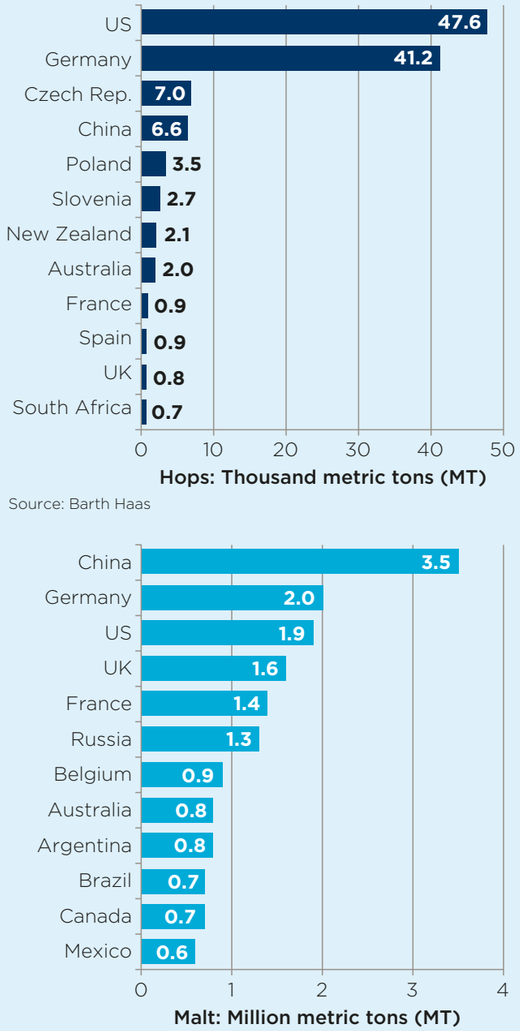
Most beer is made from three ingredients: water, barley malt, and hops. Every brewer has its own recipe, derived from decades and sometimes centuries of brewing expertise and regional traditions. But to give an indication of how beer is brewed, for an average Belgian beer, 1 kilogram of grains (barley malt) is combined with 10 grams of hops and 25 litres of water to produce 5 litres of beer.[17] As such, it follows that 9% of the brewers' total procurement in 2023 was spent with firms across the global agricultural sector.

Nearly 120,000 metric tons (MT) of hops were grown globally in 2023, across more than 60,000 hectares of cultivated land. Two areas produced the majority of the world's hops. Production in the United States is concentrated in the Pacific Northwest (Washington, Idaho, and Oregon), with these three states accounting for 39.9% of global hops production in 2023 (and the US as a whole 40.2%). In Germany, hop production is focused in the Hallertau area just north of Munich, which accounted for around 30% of global hop production in 2023 (with Germany accounting for 35%). The remaining production was mostly in rest of the European Union, which accounted for a further 14% of production (concentrated in Czech Republic, Poland, and Slovenia). Meanwhile, China produced around 6% of the global total (Fig. 19).

A greater volume of barley is required for the brewing process. Global production volumes are much higher than hops, with the crop available at a much lower price. Of the 142.6 million MT of barley grown in 2023, an estimated 20% was used for malt barley, totalling 30 million MT. While being the largest malting barley importer worldwide (over 90% of their barley needs), China is the largest malt producer with an estimated 3.5 million MT. Germany, the US, and the UK are large producers, mainly for their domestic brewing needs. France and Belgium follow this ranking, with more focus on serving export markets from Europe. Indeed, it is estimated 80% of France's malt is exported to more than 110 countries.[18]

Overall, we estimate the brewers supported a $15.1 billion supply chain (indirect) contribution to GDP in the global agricultural sector, alongside 2.0 million jobs in 2023, as a result of their procurement spending with suppliers.[19]

Fig. 19: Global production of hops (top) and malt (bottom)



Source: Barth Haas

Source: WBA

[17] Kasteel Brouwerij, Water, malt, hops and yeast: the ingredients you need to brew beer
[18] Malteurs De France, Le malt, un ingrédient naturel essentiel
[19] This figure comprises all supply chain activity in the agriculture sector supported by the brewers' procurement spending. The activity support with agricultural suppliers as a result of direct procurement spending will be in the first round of this supply chain activity. However, this figure also encompasses further rounds of supply chain activity in the agriculture sector, as brewers' suppliers purchase their inputs of goods and services. It should be noted that any manufactured, or prepared, malt purchased by the brewers, versus barley for malt, is assigned initially to be the food and beverage manufacturing sector, as per the International Standard Industrial Codes (1103 Manufacture of malt). In this case, the agricultural activity is captured in the subsequent rounds of supply chain activity, as the malt manufacturers purchase their barley for malt.

3.3 BREWERS' WAGE-INDUCED IMPACT

The brewers, and the companies in their global supply chains, pay their staff wages, enabling their workers to make purchases in the wider consumer economy. Employees make purchases at retail, leisure, and other outlets, further stimulating economic activity.

We estimate that through this wage-induced spending, the brewers sustained an additional $74 billion contribution to GDP across the global economy in 2023.

In our analysis, we map out household consumption spending across the global economy, based on the sectors and countries in which wages paid in each country are spent.

The sectors benefitting from this activity reflect the types of industries in the typical household consumption basket. The largest share of the brewers' induced impact is sustained in the real estate sector ($11 billion wage-induced GDP contribution), driven by spending on rent and housing by employees, an important component of consumer spending. This is followed by the wholesale and retail sector ($10 billion), and the financial services sector ($6 billion).

This wage-induced economic activity also supported 2.8 million jobs across the global economy, and $17 billion in tax revenues in 2023.

3.4 BREWERS' SUPPLY CHAIN INVESTMENT IMPACT

We also assess the economic activity supported by the capital expenditure undertaken by the brewers' suppliers. For instance, hop or barley growers may invest in new agricultural machinery, or an aluminium supplier might invest in a new production plant, at least in part sustained by the revenue they earn from the brewers purchasing their products as inputs to their operations. This investment generates additional economic activity which subsequently ripples through the economy. The inclusion of supply chain investments marks an addition to the standard economic impact framework, and an addition to the scope of this study relative to our previous report.

Through this further channel of impact, we estimate that the brewers supported an additional $76 billion GDP contribution to the global economy in 2023. This is estimated by modelling the capital investment requirements of each sector in each country.

The largest share of this impact was sustained in the construction sector ($10 billion, or 10% of the total), a key component of capital expenditure. Supply chain investments also sustained significant activity in the wholesale and retail ($9.3 billion) and business services ($6.4 billion) sectors. The activity in business services represents increased demands for engineering and legal services that are integral to delivering capital investments. Wholesale impacts mainly denote activity further on down the value chain, among firms that are suppliers to the industries carrying out the capital investments. A total of $20 billion was collectively supported across the manufacturing sectors given machinery and equipment forms another major element of capital expenditure.

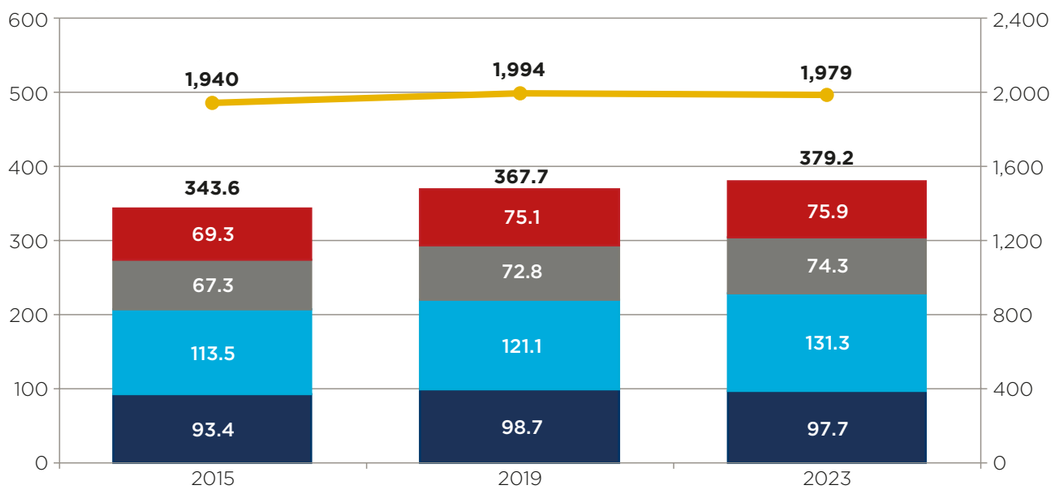
The brewers' supply chain investment activity also supported 2.8 million jobs and $20 billion in tax revenues to governments globally.

3.5 BREWERS' TOTAL ECONOMIC FOOTPRINT

The brewers' supported an estimated $379 billion contribution to global GDP in 2023. This is the sum of the four channels of impact outlined in this section—direct, supply chain (indirect), wage-induced, and supply chain investments. This activity was associated with 11.9 million jobs and $86 billion in tax revenues supported. Below, we consider how this compares to the brewers' economic footprint in 2015 and 2019.

Over the past decade, this total contribution to GDP has shown resilience amidst the industry backdrop. Whilst global beer production volumes are estimated to be 2% higher in 2023, relative to 2015, the total contribution to GDP of the brewers has risen 10% over the same period, in constant 2023 prices and exchange rates.[20] As shown in Fig. 20, this growth was driven by the brewers' supply chain spending, with the supply chain (indirect) contribution to GDP increasing 16% between 2015 and 2023. The total employment supported by the brewers has risen by 5% over the same period.

Fig. 20: Brewers' total contribution to GDP in 2015, 2019, and 2023



Source: Oxford Economics, Plato Logic

Note: totals may not sum due to rounding.

[20] Production figures sourced from Plato Logic. The economic footprint of the brewers across time are compared on a like-for-like basis in terms of geographical scope and methodology. Constant 2023 prices and exchange rates mean the impacts have been adjusted for inflation and exchange rates.

THE IMPORTANCE OF DOMESTIC SUPPLIERS TO THE BREWERS

The brewers support significant economic activity in the local communities in which they operate through their high share of spending with domestic suppliers. This means there is more subsequent supply chain activity retained in the country, as these suppliers purchase their own inputs of goods and services, along with more employee-generated impact through wage-induced spending.

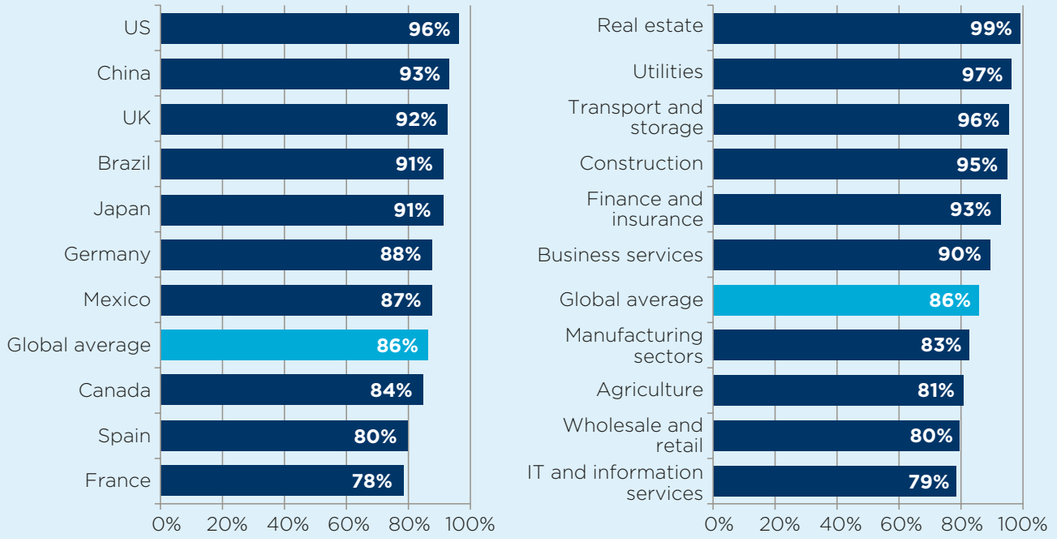
Across the world, we estimate almost nine-tenths (86%) of all the brewers' supplies were purchased from businesses in the country of production. Fig. 21 shows the share of brewers' spending with suppliers local to the country of production, for the 10 countries where the beer sector's economic footprint is largest.

The US had the highest share of domestic spending, at 96%. This reflects the availability of the agricultural products (97% purchased from domestic suppliers), manufactured goods (96%), and services (96%) required for brewing within the country. China's strongly domestic-oriented supply chains were also reflected in the brewers' spending, 93% of which was with domestic suppliers.

The countries within the European Union generally had a lower share of domestic purchases—although still the vast majority. This reflects their position in the single market and their more internationally integrated supply chains. However, a notable 88% of brewers' spending originating in Germany was with domestic suppliers, in part reflecting the domestic purchase of agricultural products.

By industry, nearly all the brewers' spending on real estate (99%) and utilities (97%) was with domestic suppliers. Likewise, spending on transportation and storage (96%) and construction (95%) was mostly domestic. When brewers purchased agricultural raw materials, an estimated 81% was spent with domestic suppliers. This reflects the fact that not all countries have suitable conditions to grow hops and barley.

Fig. 21: Domestic share of brewers' procurement in countries with largest footprint (left) and by industry (right)



Source: WBA, OECD, Oxford Economics

4. DOWNSTREAM VALUE CHAIN'S GLOBAL ECONOMIC FOOTPRINT

The beer sector's footprint spreads far beyond the activity supported by the brewers themselves. The process of selling beer—whether that is in distribution, wholesale, retail, or hospitality—generates and supports further economic activity. We collectively refer to the businesses engaged in the process between the brewers selling and the consumers buying as the beer sector's downstream value chain. This section outlines its economic footprint through its beer-related activity.

The beer sector's downstream value chain supported a $499 billion contribution to global GDP in 2023. As the global beer sector—which comprises both brewers and its downstream value chain—supported a total contribution to global GDP of $878 billion in 2023, this means 57% of the beer sector's total contribution to GDP was connected to its downstream value chain.

$499 billion

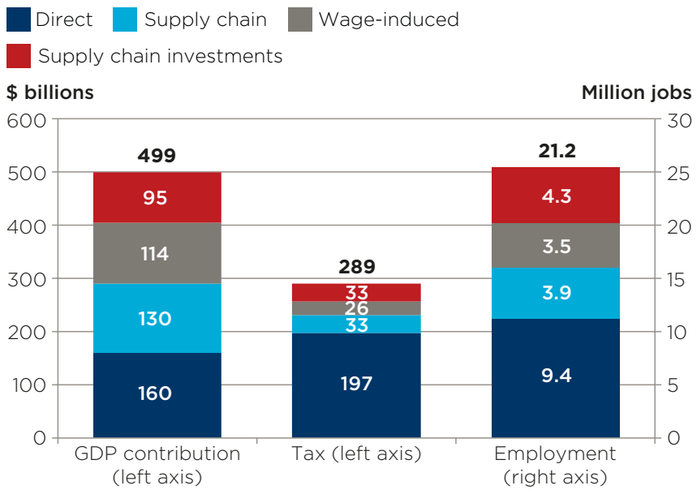
Beer distributors', retailers', and hospitality sector's total contribution to global GDP. This activity supported a total of 21.2 million jobs.

This total includes the distribution, wholesale, retail, or hospitality outlets' direct contribution to GDP, along with the activity sustained through their supply chain (indirect), wage-induced, and supply chain investment impacts (Fig. 22).

This economic activity was estimated to have sustained a total of 21.2 million jobs, including an estimated 9.4 million jobs directly at on-trade and off-trade outlets themselves, attributable to their sale of beer. The downstream value chain sustained $290 billion in tax payments to global governments, which includes an estimated $163 billion in beer sales tax paid on the downstream value chain's purchase of beer from brewers.

The majority of this economic activity was sustained in the "core countries". In total, a $426 billion contribution to GDP was supported by the downstream value chain in these countries, which amounts to 85% of the global downstream total. This is similar to the equivalent figure for total tax impact (87% of the global total, or $251 billion). However, for the total employment supported, 13.3 million of these jobs were sustained in the core countries, which is 63% of the global total. This reflects the more labour-intensive nature of economic activity in countries contained within the rest of the world grouping, which tend to be lower-income markets.

Fig. 22: Downstream value chain's economic footprint in 2023



Source: Oxford Economics

Note: totals may not sum due to rounding.

4.1 DOWNSTREAM VALUE CHAIN'S DIRECT IMPACT

Our starting point for estimating the economic footprint of the downstream value chain is derived from the distributors' revenues attributable to beer. This is measured as the difference between the aggregate retail selling price and manufacturers' selling price in each country, net of any beer sales tax payments (excise and sales tax).

According to Euromonitor data, the global average retail selling price per pint of beer sold was more-than-double (106%) the price received by manufacturers in 2023. For example, if a distributor buys a pint of beer for $2.00 they would sell it for $4.12, on average. The difference between the two is the margin they earn plus the beer sales tax they paid. We deduct the latter to reach the figure of distributor's revenue.

We estimate the distributor's revenue attributable to beer totalled $304 billion in 2023. Slightly more distributors' revenue was sustained in the on-trade—for instance bars, restaurants, and pubs ($170 billion, or 56% of the total), versus the off-trade—such as supermarkets and convenience stores ($134 billion, or 44% of the total).

Considering the largest markets, the on-trade was most prominent in Spain (85%), Switzerland (75%), and Germany (73%). The off-trade was most prominent in Australia (74%), India (67%), and Japan (60%).

From this distributors' revenue, we estimate the downstream value chain directly generated an estimated $160 billion contribution to global GDP in 2023. As on-trade and off-trade establishments sell their beer at a mark-up (the retail selling price), they create this economic value by providing customers with the convenience of purchasing beer at stores local to their home or accommodation, or provide them with enjoyable, entertaining, and comfortable experiences at hospitality sites.

Beer's downstream value chain supports plentiful job opportunities. The downstream value chain directly supported 9.4 million jobs at on-trade and off-trade through beer sales. When beer enters the downstream value chain, it goes on to facilitate significantly more service jobs in the retail and hospitality sectors, which tend to be more labour-intensive relative to other parts of the economy.

In fact, for every $1 million in direct GDP supported by the downstream value chain, an estimated 59 jobs were directly supported at on-trade and off-trade establishments.

Lastly, this economic activity was associated with just over $197 billion in taxes paid to authorities in the countries of operation. Most prominently, this includes the $163 billion in beer sales taxes paid by the various distributors as they purchase beer from the brewers. This includes almost $92 billion in VAT and sales taxes and around $71 billion in excise duties, with the remainder comprising corporation taxes, taxes on employment, and other taxes such as environmental taxes.

4.2 DOWNSTREAM VALUE CHAIN'S SUPPLY CHAIN (INDIRECT) IMPACT

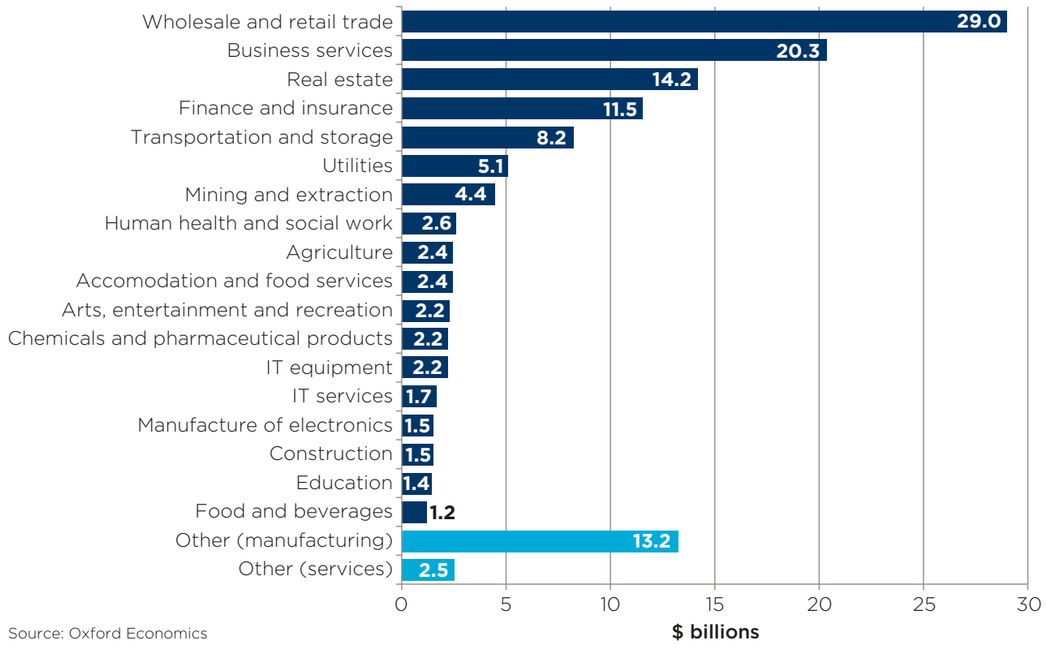
As the on-trade and off-trade establishments purchase the inputs of goods and services they require to sell the beer, they support further activity along their global supply chains. This channel of impact therefore captures the activities of the logistics sector as they purchase software systems; retailers and wholesalers buying tills and marketing services; and hospitality venues spending on glassware, entertainment, and utility bills, for example.

Beer's downstream value chain spending with suppliers totalled an estimated $144 billion in 2023. By country, the main recipients of this spending were located in China ($34 billion) and the United States ($31 billion), reflecting the size of their beer markets. This was followed by Germany ($8.1 billion) and the UK ($5.3 billion).

Based on this spending, we estimate beer's downstream value chain supported a $130 billion supply chain (indirect) contribution to GDP in 2023. The largest shares of this total were supported in the wholesale and retail sector ($29 billion, or 22% of the total) and the professional services sector ($20 billion, or 16% of the total). These sectors are prominent in the subsequent rounds of the supply chain as suppliers use these services too, on top of the distributors' own purchases. The third largest impact was in the real estate sector, with a $14 billion supply chain (indirect) contribution to GDP (11% of the total), as the distributors spend on rent and facilities.

In total, this activity was associated with a further 3.9 million jobs along the distributors, retailers, and hospitality sector's supply chain, along with a further $33 billion in tax payments.

Fig. 23: Supply chain contribution to GDP by the downstream value chain, 2023



Source: Oxford Economics

4.3 DOWNSTREAM VALUE CHAIN'S WAGE-INDUCED IMPACT

Through the wages supported by beer's downstream value chain, we estimate this supported a further $114.3 billion contribution to GDP. Reflecting the sectors in which these wages were spent, the largest contribution by sector was in the real estate sector ($17 billion, or 15% of the total wage-induced contribution to GDP), as those employed at distributors, retailers, and hospitality outlets (along with those employed in their supply chains) spent on rent and housing. This was followed by the wholesale and retail sector ($14 billion, or 11% of the total), driven by general consumer spending at retailers (such as groceries and clothing).

This wage-induced activity supported a further 3.5 million jobs across the consumer economy, along with $26 billion in tax revenues.

4.4 DOWNSTREAM VALUE CHAIN'S SUPPLY CHAIN INVESTMENT IMPACT

Through the supply chain investments supported, we estimate beer's downstream value chain sustained an additional $95 billion contribution to GDP in 2023. A notable share of this was in the construction sector, with a $11 billion contribution to GDP as suppliers invested in building new facilities. However, we also see clear flows into key manufacturing sectors driven by suppliers' capital investment on new equipment. This includes machinery ($3.0 billion contribution to GDP), electronics ($2.8 billion), and vehicles ($2.4 billion). The wholesale and retail sector and professional services sector also account for significant activity supported by the supply chain investments, though—particularly in the case of the former—this activity is sustained further down the supply chain.

In total, the activity supported by these supply chain investments was associated with a further 4.3 million jobs and $33 billion in tax payments.

4.5 DOWNSTREAM VALUE CHAIN'S TOTAL ECONOMIC FOOTPRINT

We estimate the beer distributors, retailers, and hospitality sector supported a total contribution to global GDP of $499 billion. This was the sum of its GDP contributions across the four channels of impact—direct, supply chain (indirect), wage-induced, and supply chain investments. This was associated with 21.2 million jobs and $289 billion in tax revenues.

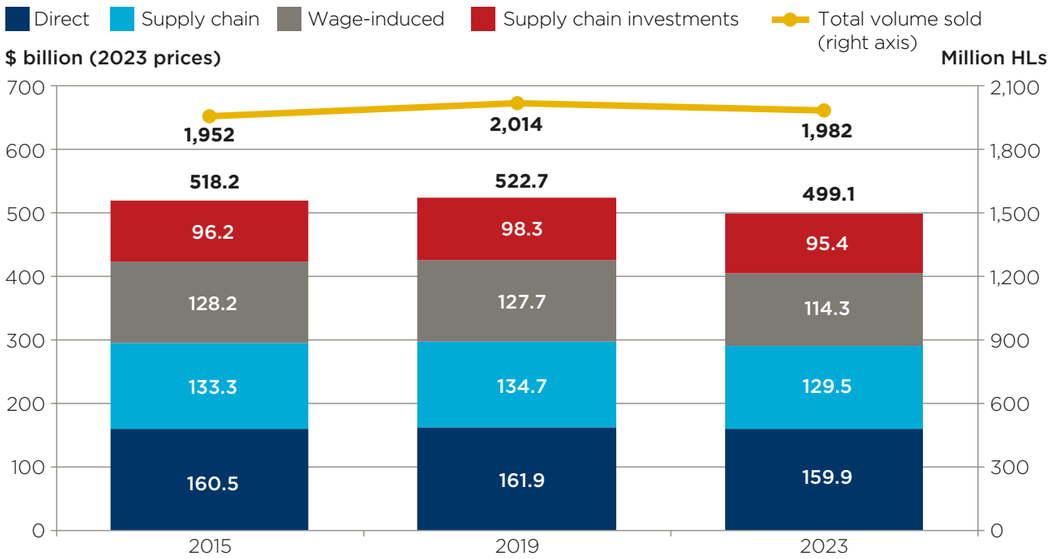
However, it is important to consider how the downstream value chain's impact has evolved over time. In volume terms, beer sales remained below 2,000 million HLs in 2023. While this marks a 1.5% rise on 2015 levels, it means beer sales are 1.6% lower than in 2019, in volume terms—showing sales had not returned to pre-pandemic levels as of 2023 following the disruption caused by the restrictions imposed to tackle Covid-19.

Beer prices have also been squeezed in recent years. The global aggregate retail selling price has risen just 0.2% between 2019 and 2023. This suggests the price rise of beer has not matched inflation elsewhere in the economy, weighing on the economic footprint of beer sector's downstream value chain.

When looking at the downstream value chain's economic impact over this period we see a slight contraction over time. In constant 2023 prices, the downstream value chain's total contribution to global GDP has dipped from $518 billion in 2015, to $499 billion in 2023—a real decline of 3.7%.

However, we do see a 5.8% rise in the total employment supported by the downstream value chain. This is driven primarily by an increase in the number of staff directly employed by distributors, retailers, and hospitality outlets themselves, as the beer sector has grown in lower-income countries, where the retail and hospitality sectors are traditionally more labour intensive.

Fig. 24: Downstream value chain's total contribution to GDP in 2015, 2019, and 2023



Source: Oxford Economics, Euromonitor

Note: totals may not sum due to rounding.

5. CONCLUSION

As one of the world's largest industries, the beer sector encompasses a diverse network of organisations involved in brewing, marketing, distributing, and selling beer to millions of adult consumers worldwide. Our report has shown that it made a substantial contribution to the global economy and employment in 2023.

Measured through the lens of its contribution to global gross domestic product (GDP), the sector had an impact of $878 billion in 2023, equivalent to $1 in every $119 of global economic output. In terms of employment, the sector supported an estimated 33 million jobs—or one in every 100 jobs worldwide. Its contribution in terms of tax revenues was also significant: the sector is estimated to have supported a total of $376 billion in global tax revenues.

This report has shown that many industrial sectors derive advantages from the beer industry's activities: more than two-thirds of the beer sector's GDP contribution stems from its supply chain industries and the consumer spending by its employees.

An important contribution was seen in the agriculture sector where the beer sector supported 6.4 million jobs, or around a fifth of all employment that the beer sector supports around the world.

Beyond its immense global reach, this sector supports significant economic activity in the local communities in which they operate. For example, almost nine-tenths (86%) of all the brewers' supplies were purchased from businesses in the country of production.

Impressive as they are, the headline findings mask the significant contribution the beer sector makes in low- and lower-middle-income countries where the needs for wealth and jobs are greatest. Its total contribution as a share of the national GDP averaged 1.5% in these low- and lower-middle-income countries in 2023—almost double its contribution to GDP in high-income countries.

Overall, this report has shown that the global beer industry generates a positive economic feedback loop, driving economic activity and supporting employment and prosperity on a global scale with a notable impact on some of the world's less developed nations.

For further country-by-country detail and sectoral breakdown of results, readers are directed to our interactive microsite of results.

ANNEX 1: ADDITIONAL RESULTS

COUNTRY RESULTS

The table below outlines the country total impacts, with their share of the national economy, and how this share ranks across the core countries. More detail on the country-by-country results and further breakdowns are available here.

Fig. 25: Total economic footprint in each country as a share of national total

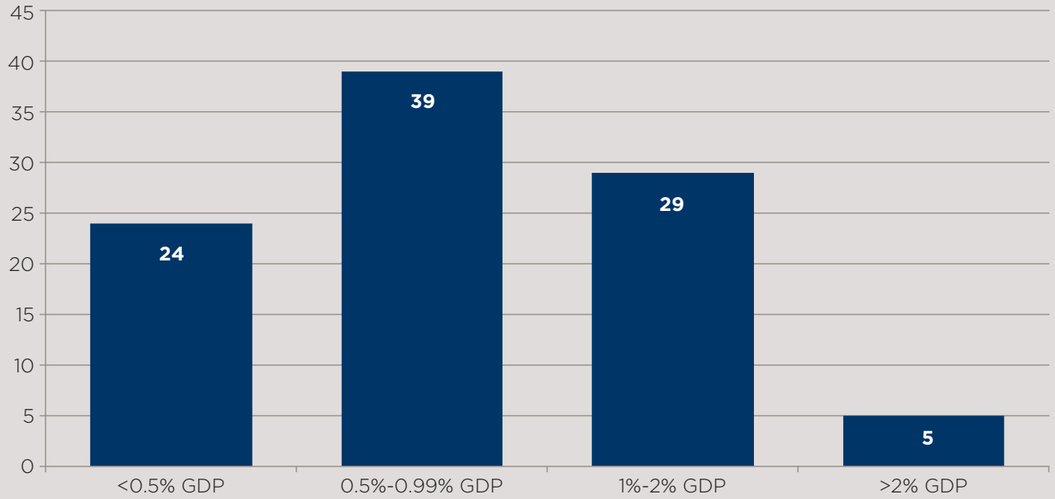
Country	GDP contribution			Employment contribution			Tax contribution		
	Total GDP	Share of national economy	Rank (share of national economy)	Total jobs	Share of national total	Rank (share of national total)	Total tax	Share of national total	Rank (share of national total)
Unit:	$ billions	%		Thousands	%		$ billions	%	
Cambodia	1.9	5.8%	1	619	6.8%	1	1.6	20.4%	1
Vietnam	9.6	2.2%	2	1,153	2.2%	5	5.6	7.6%	5
Eswatini	0.1	2.3%	3	6	2.3%	4	0.0	2.5%	28
Myanmar	1.3	2.1%	4	234	1.6%	12	0.8	13.4%	3
Ecuador	2.5	2.1%	5	208	2.5%	3	1.0	2.3%	29
Lesotho	0.0	2.0%	6	11	1.3%	19	0.0	3.2%	21
Thailand	10.1	2.0%	7	815	2.0%	6	3.6	4.8%	12
Mozambique	0.4	2.0%	8	165	1.1%	25	0.4	5.8%	10
Honduras	0.6	1.9%	9	65	1.5%	14	0.4	3.7%	20
Rwanda	0.3	1.8%	10	84	1.9%	8	0.1	4.1%	18
Paraguay	0.7	1.6%	11	28	0.9%	45	0.2	3.1%	22
Bolivia	0.8	1.6%	12	76	1.3%	16	0.7	4.4%	14
Chile	5.4	1.6%	13	179	2.0%	7	2.3	3.0%	24
Ethiopia	2.6	1.6%	14	747	1.3%	20	0.9	6.8%	7
Brazil	33.0	1.5%	15	1,689	1.7%	10	19.2	2.7%	27
Peru	4.0	1.5%	16	222	1.3%	17	2.1	4.0%	19
El Salvador	0.5	1.5%	17	31	1.1%	29	0.3	4.2%	17
Namibia	0.2	1.5%	18	11	1.4%	15	0.1	1.7%	39
Zambia	0.4	1.4%	19	234	3.5%	2	0.4	6.2%	9
Croatia	1.2	1.4%	20	30	1.7%	11	0.6	1.9%	34
South Africa	5.2	1.4%	21	209	1.3%	18	3.9	4.2%	16
Dominican Republic	1.6	1.3%	22	44	0.9%	38	1.0	5.4%	11
Mexico	23.1	1.3%	23	632	1.1%	28	16.8	4.2%	15
Bulgaria	1.4	1.3%	24	61	1.7%	9	0.5	1.2%	52
Uganda	0.6	1.3%	25	169	0.9%	37	1.2	15.9%	2
Ivory Coast	1.0	1.2%	26	162	1.5%	13	0.4	3.1%	23
Jamaica	0.2	1.2%	27	10	0.8%	49	0.1	2.8%	26
Colombia	4.4	1.2%	28	200	0.9%	41	4.4	6.4%	8
Austria	5.8	1.1%	29	51	1.1%	27	2.7	1.2%	53
Belgium	7.4	1.2%	30	46	0.9%	39	5.6	2.1%	32
Dem. Rep. of the Congo	0.6	1.0%	31	242	0.7%	57	0.7	7.9%	4
Spain	16.5	1.0%	32	199	0.9%	36	11.5	2.0%	33

Country	GDP contribution			Employment contribution			Tax contribution		
	Total GDP	Share of national economy	Rank (share of national economy)	Total jobs	Share of national total	Rank (share of national total)	Total tax	Share of national total	Rank (share of national total)
Unit:	$ billions	%		Thousands	%		$ billions	%	
Slovenia	0.7	1.0%	33	9	1.0%	32	0.4	1.5%	45
Netherlands	11.6	1.0%	34	107	1.1%	26	5.8	1.4%	49
Tanzania	0.8	1.0%	35	135	0.5%	68	0.5	4.5%	13
Argentina	6.4	1.0%	36	118	0.9%	44	3.2	2.9%	25
Germany	44.4	1.0%	37	453	1.0%	34	18.9	1.1%	55
Portugal	2.7	0.9%	38	41	0.8%	46	1.9	1.7%	38
Australia	16.1	0.9%	39	125	0.9%	40	7.2	1.6%	41
Ireland	5.1	0.9%	40	33	1.2%	21	1.8	1.6%	40
New Zealand	2.3	0.9%	41	33	1.1%	24	1.0	1.1%	56
United Kingdom	30.8	0.9%	42	322	0.9%	42	16.6	1.9%	35
Canada	19.5	0.9%	43	199	1.0%	33	6.1	0.7%	68
Botswana	0.2	0.9%	44	4	0.5%	70	0.4	7.4%	6
Ukraine	1.6	0.9%	45	133	1.2%	23	0.6	0.6%	72
Switzerland	7.7	0.9%	46	65	1.2%	22	2.0	0.6%	71
Czechia	2.9	0.8%	47	50	1.0%	31	1.3	1.5%	44
Finland	2.5	0.8%	48	20	0.7%	54	1.9	1.4%	48
Latvia	0.4	0.8%	49	7	0.8%	47	0.2	1.4%	50
Greece	1.9	0.8%	50	33	0.8%	50	0.9	0.9%	63
China	145.5	0.8%	51	6,537	0.9%	43	71.5	2.3%	30
Romania	3.0	0.9%	52	82	1.0%	35	1.0	0.9%	64
South Korea	14.7	0.8%	53	294	1.0%	30	6.1	1.5%	46
Lithuania	0.6	0.8%	54	9	0.6%	61	0.4	1.5%	43
Poland	6.0	0.7%	55	116	0.7%	60	3.0	0.9%	65
Slovakia	1.0	0.8%	56	20	0.8%	52	0.5	1.0%	58
Panama	0.6	0.8%	57	15	0.8%	51	0.3	1.9%	36
Uruguay	0.6	0.8%	58	13	0.8%	48	0.4	2.1%	31
Denmark	3.0	0.7%	59	21	0.7%	56	1.5	0.7%	67
Hungary	1.5	0.7%	60	33	0.7%	58	0.9	1.0%	61
Sri Lanka	0.6	0.7%	61	47	0.6%	64	0.1	1.5%	42
Estonia	0.3	0.7%	62	4	0.6%	65	0.2	1.4%	47
Japan	29.9	0.7%	63	502	0.7%	55	14.2	0.9%	66
United States	181.8	0.7%	64	1,209	0.8%	53	38.8	0.5%	74
Sweden	3.8	0.6%	65	32	0.6%	63	2.8	1.0%	60
Luxembourg	0.5	0.6%	66	3	0.6%	66	0.2	0.5%	73
Malaysia	2.4	0.6%	67	110	0.7%	59	0.7	1.1%	57
Italy	13.0	0.6%	68	134	0.6%	67	6.2	0.7%	69
Turkey	6.6	0.6%	69	197	0.6%	62	2.2	1.0%	59
Norway	2.4	0.5%	70	12	0.4%	73	1.5	0.5%	75
France	16.3	0.5%	71	158	0.5%	69	8.3	0.6%	70
Ghana	0.4	0.5%	72	52	0.4%	74	0.2	1.3%	51
Nigeria	1.9	0.5%	73	307	0.4%	71	0.3	1.0%	62
Egypt	1.6	0.4%	74	125	0.4%	72	0.6	1.1%	54
India	10.6	0.3%	75	1,315	0.3%	76	5.9	1.8%	37
Indonesia	3.6	0.3%	76	417	0.3%	75	0.8	0.4%	76

DISTRIBUTION OF RESULTS

Fig. 26: Distribution of beer sector's GDP contributions as % of national GDP in 2023

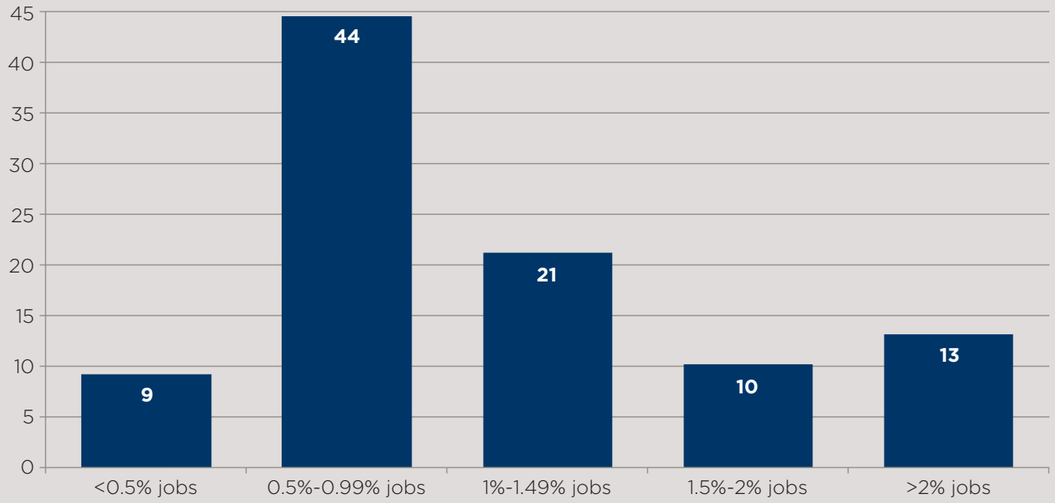
Number of countries



Source: Oxford Economics

Fig. 27: Distribution of beer sector's job contributions as % of national employment in 2023

Number of countries

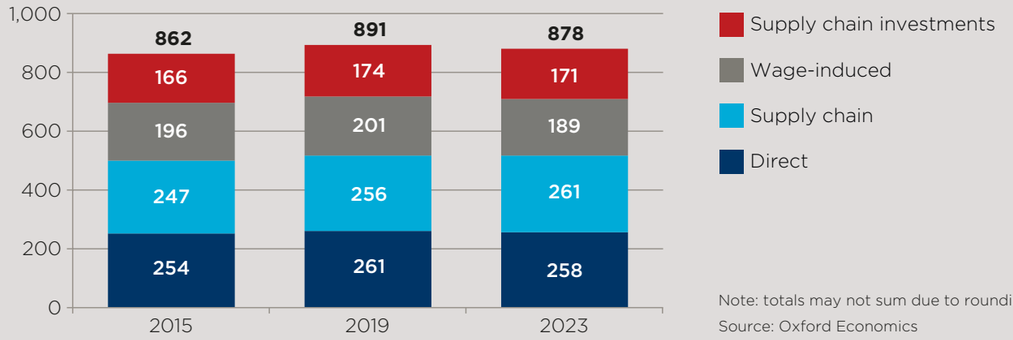


Source: Oxford Economics

ANNEX 2: HISTORICAL TRENDS

Fig. 28: Evolution of the global beer sector's contribution to GDP, 2015–2023

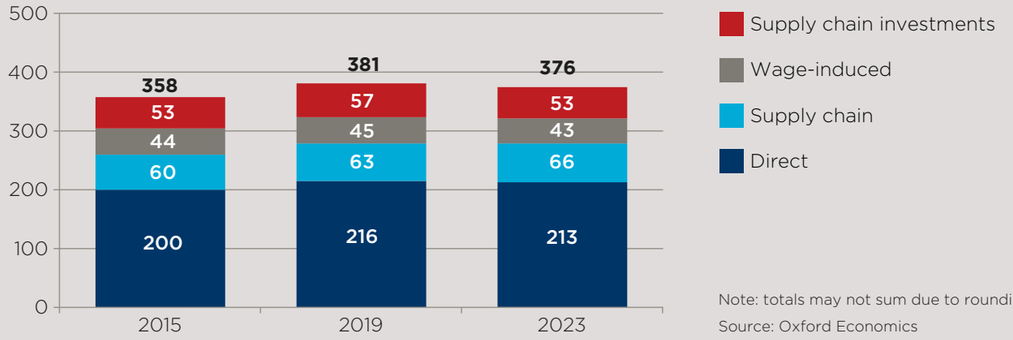
Contribution to GDP, $ billions (2023 prices)



Note: totals may not sum due to rounding.
Source: Oxford Economics

Fig. 29: Evolution of the global beer sector's tax contribution, 2015–2023

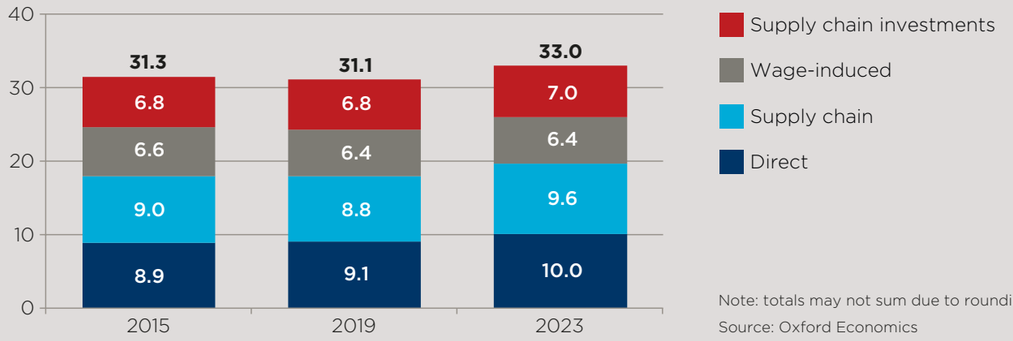
Tax contribution, $ billions (2023 prices)



Note: totals may not sum due to rounding.
Source: Oxford Economics

Fig. 30. Evolution of the global beer sector's employment impact, 2015–2023

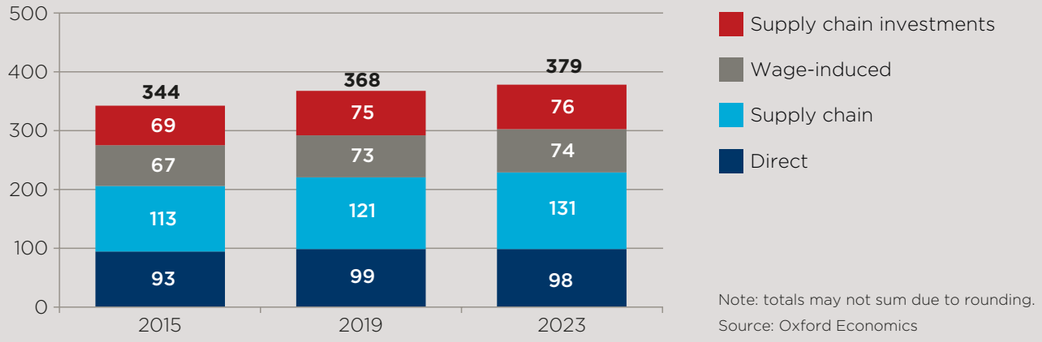
Employment supported, million jobs



Note: totals may not sum due to rounding.
Source: Oxford Economics

Fig. 31. Evolution of the brewers' contribution to GDP, 2015–2023

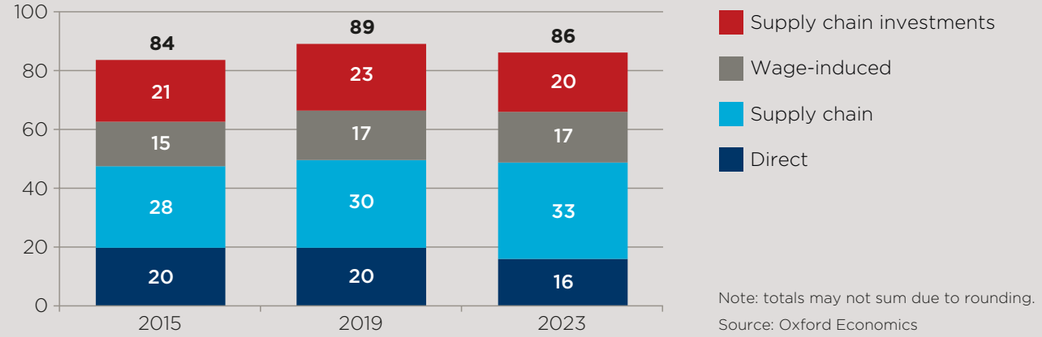
Contribution to GDP, $ billions (2023 prices)



Note: totals may not sum due to rounding.
Source: Oxford Economics

Fig. 32. Evolution of the brewers' tax contribution, 2015–2023

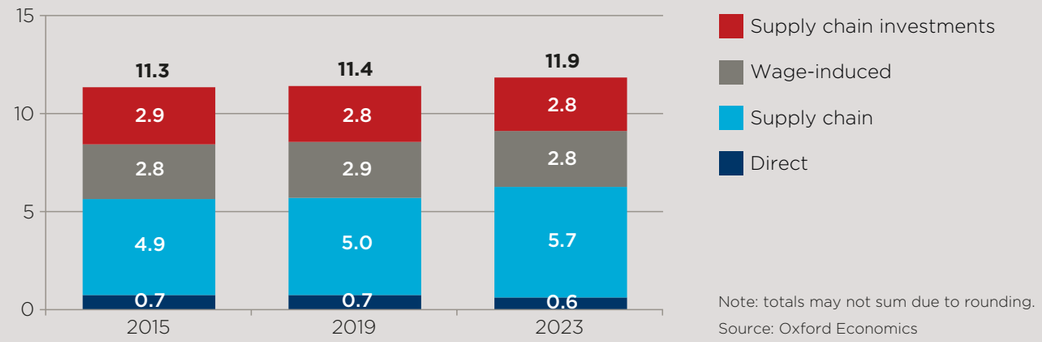
Tax contribution, $ billions (2023 prices)



Note: totals may not sum due to rounding.
Source: Oxford Economics

Fig. 33. Evolution of the brewers' employment impact, 2015–2023

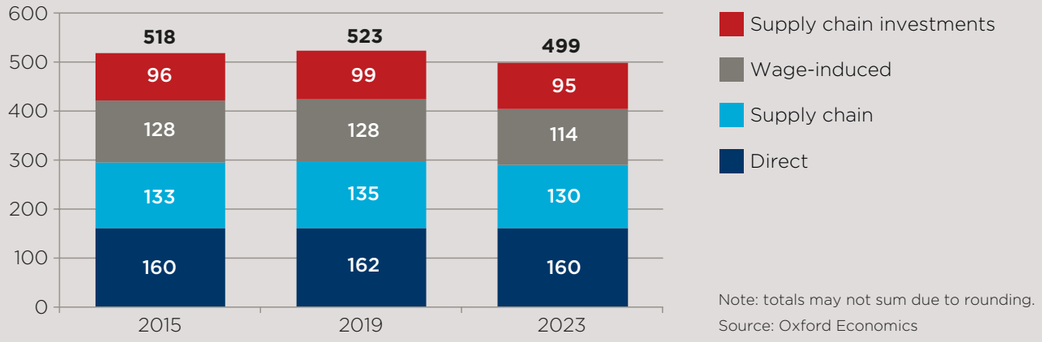
Employment supported, million jobs



Note: totals may not sum due to rounding.
Source: Oxford Economics

Fig. 34. Evolution of the downstream value chain's contribution to GDP, 2015–2023

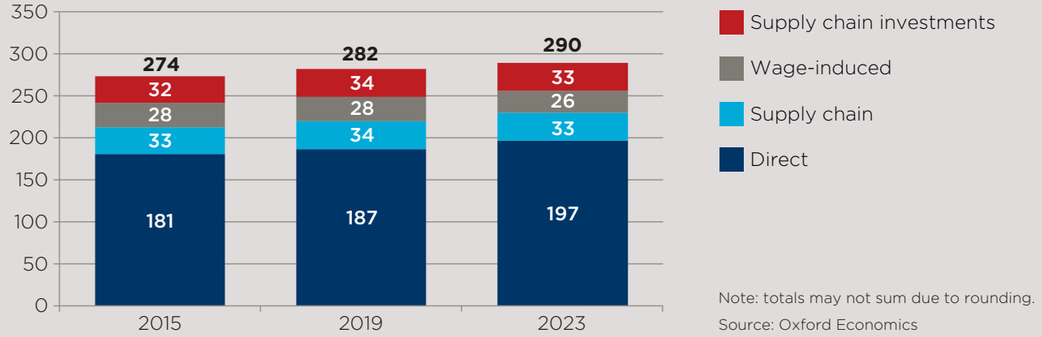
Contribution to GDP, $ billions (2023 prices)



Note: totals may not sum due to rounding.
Source: Oxford Economics

Fig. 35. Evolution of the downstream value chain's tax contribution, 2015–2023

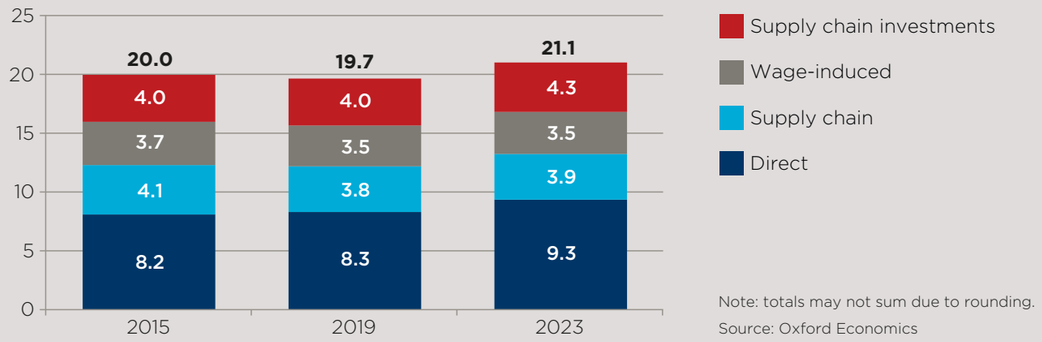
Tax contribution, $ billions (2023 prices)



Note: totals may not sum due to rounding.
Source: Oxford Economics

Fig. 36. Evolution of the downstream value chain's employment impact, 2015–2023

Employment supported, million jobs



Note: totals may not sum due to rounding.
Source: Oxford Economics

ANNEX 3: METHODOLOGY

DATA SOURCES

The list below sets out the key data sources used in the analysis:

- Brewers/association data: Anheuser-Busch InBev, Carlsberg, Heineken, Molson Coors Beverage Company, Brewers Association of Japan, Asahi, Lion, and Turk Tuborg's financial, procurement, headcount, and production data.
- National statistics: Australian Bureau of Statistics, Brazilian Institute of Geography and Statistics, CanStat, Eurostat, Thai National Statistics Office, UK Office for National Statistics, and the US Census Bureau.
- Market data: Euromonitor beer Retail Selling Price (RSP), Manufacturer Selling Price (MSP), market size and share estimates; Plato Logic beer production market size and shares estimates; and Barth Haas production estimates.
- WBA excise tax information

Four large brewers—Anheuser-Busch InBev, Carlsberg, Heineken, and Molson Coors Beverage Company—provided data about their 2023 operations to inform this study. These brewers supplied data from their financial, human resources, and procurement departments.

These data are essential for understanding the direct GDP, employment, and tax impact of these large brewers, as well as the composition of the beer sector's global supply chains. These data were supplemented by information from Turk Tuborg, and the trade associations of Japan, New Zealand, and Australia, to inform our estimates for these countries where brewers, other than the four mentioned above, hold a commanding market share.

We collected extensive data about the brewing sector from official national statistics agencies. Our use of these data is important for two reasons. First, it is essential to estimating the total size and key characteristics of the brewing sector, such as gross value added, employee compensation, and intermediate consumption. Wherever available, these data provide top-down boundaries that constrain our estimates so they are consistent with official national statistics. Second, these data extend our knowledge of the structure of the sector beyond the characteristics of the large brewers.

The Eurostat structural business survey provides key information across the European countries, which we supplemented with country specific data, for the countries for which these national statistics were available. UNIDO provided national statistics on the beer manufacturing sector for a number of additional countries.

Our third key source of information was the market data. We used Plato Logic data on the aggregate value of beer production in each country in estimating brewers' total activity in each country, and Euromonitor data on retail sales by on-trade and off-trade establishments to implement top-down boundaries on our estimates of the impact of beer's downstream value chain. Lastly, we used information provided by the WBA to inform our estimates of the excise paid on the purchase of beer.

Beyond these data sources specific to this project, Oxford Economics used a wide range of data about the structure of national economies in our *Global Sustainability Model*. The sources and methods for this model are described in greater detail below.

DETAILED METHODOLOGY

The Global Sustainability Model

Our approach for assessing the beer sector's economic footprint across the globe is based on the Oxford Economics *Global Sustainability Model (GSM)*. The GSM leverages the knowledge and techniques we have developed in mapping economic relationships between countries and industries across the world. The model includes information about global supply chains that are typically excluded from standard economic impact assessments, enabling comprehensive measurement of economic footprints.

The ability to trace how global supply chains stimulate activity in different economies is essential for developing a comprehensive measure of the beer sector's footprint in any given country. For example, it enables us to trace how the spending American brewers make with suppliers in the United States can stimulate supply chains that pass in and out of the United States further up the value chain. Consequently, the GSM provides a comprehensive measure of the beer sector total impact on a given economy.

The GSM covers 186 countries across the globe, and therefore the vast majority of global GDP. Each country's economy is split into 36 industries, as defined by the ISIC Revision 4 classifications.

Using the GSM, we assess the economic contribution of beer sector across the following four channels:

- Its direct impact: the GDP generated by the beer sector operations (the sum of wage payments and profits), along with its employment and direct tax payments;
- Its supply chain (indirect) impact: encompassing the production and employment supported across the beer sector supply chain by its procurement spending with third party suppliers;
- Its wage-induced impact: the wage-consumption related activity that is supported by the wages paid by the beer sector and those employed in its supply chain; and
- Its supply chain investments impact: the economic activity supported by additional investments that take place along the beer sector's supply chain as a result of its spending with the suppliers. This is a new addition to this project.

An economic impact assessment framework: input-output modelling

The GSM is a global input-output model, which takes advantage of techniques originally developed by the Nobel Prize winning economist Wassily Leontief. Because money cycles through the economy via multiple levels of supply chain relationships, our model reveals what is commonly called a "multiplier effect" for a given spend impetus.

The input-output table that is the backbone of the GSM is based on OECD data and trade patterns, and custom input-output tables created by Oxford Economics. The resulting global input-output framework estimates how the world's economies and industries interact with each other in a single year. In addition, so that we can estimate wage-induced channel of impacts, we have added rows for compensation of employees to our global input-output table. Where possible, these data are sourced from the OECD, and elsewhere they consist of estimates produced by Oxford Economics.

To model the wage-induced impacts as accurately as possible, we also adjust the household fixed consumption expenditure (HHFCE) columns. The adjustments take into account households' propensity to spend and save in each country. They do so by multiplying the HHFCE columns by the ratio of household final consumption expenditure divided by household income from the sum of employee compensation, property income, social and other transfers, and company profits, as reported by the United Nations.

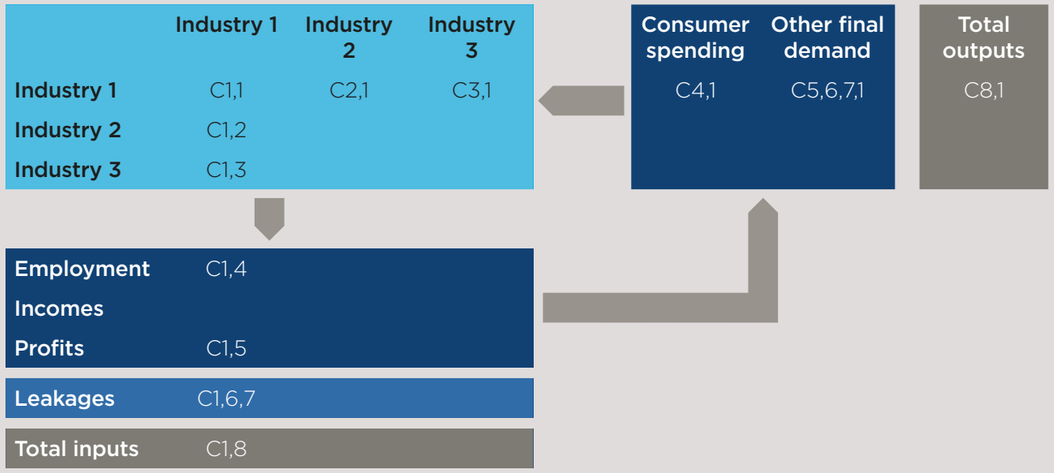
A new addition for this project, we have made a further adjustment to the global input-output table to include the gross fixed capital formation requirements of each country and sector.

This addition means we capture the additional spending on capital investments arising from a spending shock (in this case the beer sector's procurement spending with suppliers), rather than just the operational expenditure. Standard economic impact assessments generally do not include investment as a component, and therefore only consider the purchase of inputs of goods and services required to produce the products they supply. Adding in net capital expenditure to this is therefore an addition to that approach.

From the adjusted input-output tables, Oxford Economics generates Type 1 and Type 2 Leontief inverse matrices. When combined with a final demand spending shock, these provide an estimate of the sum of the internal and external production activity—across each country and 36 industries—that is required to satisfy that final demand. In other words, the model estimates all the economic activity that is stimulated by, say, a business's supply chain purchase or a consumer spending money at a retail outlet.

Once we have estimated the output that is associated with a particular spend impetus, we estimate gross value added. This is done by multiplying the model's estimate of output by gross value added to output ratios that are specific to each country and industry. Finally, we convert our GDP estimates to employment estimates. To do so, we divide our GDP estimates by estimates and/or forecasts of the ratio of gross value added to workers in each country and industry.

Fig. 30: Stylistic representation of an input-output table



Inputs to the Global Sustainability Model

1. Brewers' revenue

We first estimated the revenue of beer manufacturers in each of the 70 study countries. For 27 of the countries, we used estimates from national statistic authorities. There were no national statistic estimates for the remaining 49 countries. We therefore estimated the size of the brewers' revenue by scaling up the revenue figures provided by Anheuser-Busch InBev, Carlsberg, Heineken, and Molson Coors Beverage Company, plus the trade associations, with production market share data from Plato Logic. Where these data were missing, we used a combination of production data provided by the brewers and production data from Barth Haas.

2. Brewers' direct gross value added contribution to GDP

Where possible, we used national statistic estimates of the GDP of beer manufacturing. Where national statistics were unavailable, we applied GDP to revenue ratios by country and by brewer size, accounting for the different productive efficiencies across countries and brewery size, to our total brewers' revenue figures for each country to arrive at an estimate of the total brewing GDP.

To calculate these ratios, we first estimated the percent of market revenue produced by small- to medium-sized brewers compared with large brewers from market share data provided by Plato Logic. Using data from the four brewers and national statistics (for countries where both are available), we calculated the estimated difference in efficiency—that is, the GDP to revenue ratio—between the four brewers (who are also classed as large brewers) and the rest of the sector.

For the large brewers (including the four brewers), we assume the same level of efficiency as the four brewers. As a result, we multiply the estimated revenue of large brewers in a country (based on total country revenue and market share) by the four brewers' GDP to revenue ratio to arrive at total GDP for large brewers. For smaller brewers, we apply the same ratio adjusted down by 17 percentage points, accounting for the difference in efficiency.

This allows us to improve our estimates of the level of GDP produced by smaller brewing operations. We then summed the small brewers and large brewers GDP estimates together to arrive at the total brewers GDP in a country.

3. Brewers' procurement

To estimate total procurement, we used the production approach; taking brewers GDP from revenue to give total procurement. We then disaggregated this spending into specific sectors and regions using the spending profiles provided by the four brewers in their procurement data. The estimates of procurement are used to calculate the brewers' supply chain (indirect) impacts along with the supply chain investments they support.

4. Brewers' direct employment

Where available, we used national statistics of the total number of people employed in a country's brewing sector. Where national statistics were unavailable, we applied the four brewers' GDP to employment ratios to our estimates of GDP. As with our GDP estimates, we adjusted this to account for efficiencies across small and large brewers. We estimated that large brewers produced 8 percentage points more GDP per employee than smaller brewers.

5. Brewers' wages

To arrive at the rest of the brewing sector's compensation of employees, we applied each country's food and beverages sector compensation of employees to GDP ratio, derived from national statistics, to the rest of the brewing sector GDP. This is added to the sum of the wages paid by the four brewers according to their financial data. We then used these wage estimates to calculate brewers wage-induced impacts.

6. Brewers' taxes

To estimate the total tax paid by the brewing sector, we combined the tax data provided by the big four brewers with an estimate of the taxes paid by the rest of the sector. The brewers provided data on corporation taxes, taxes on employment, and other taxes such as environmental taxes. Excise duties have been excluded from the brewers' tax contribution; however, they are included in the total tax contribution of the beer sector through the downstream value chain.

The total direct taxes paid by the rest of the sector are estimated using the ratio of the four brewers' revenue to the rest of the sector revenue.

For a small number of countries where tax data from the four brewers are unavailable, we applied ratios for corporation tax per unit of gross value added, and labour taxes per person employed from our Global Sustainability Model to estimate the direct tax contribution of the brewing sector.

7. Downstream value chain

In addition to the brewers' economic impact, we also analysed the economic impact of the beer manufacturers' downstream value chain, including retail sale and distribution of beer. This includes the retailers' and distributors' (referred to collectively as distributors below) direct contribution to GDP, employment, and taxes in addition to the economic activity supported by their spending with suppliers (excluding beer production) and the wages they paid.

Firstly, to ensure we are not double counting any economic impacts, we estimated the distributors' margins. This is the difference between the amount the downstream value chain pays to brewers for beer (the manufacturer selling price of beer, MSP) and the revenue they receive for the sale of that beer (the retail selling price of beer, RSP).

To estimate the MSP, we adjusted our brewers' revenue figure for the net beer exports of each country using COMTRADE data on the net export within the "beer made from malt (including ale, stout & porter)" sector in 2023. This is so that we are accounting for trade.

We then estimated distributors' margins, that is the retail selling price (RSP) minus the manufacturer selling price (MSP) net of any beer sales tax (as outlined below). For 46 of the countries, we used Euromonitor's estimate of total retail selling price minus our MSP figures. For countries where this produced unrealistic results or Euromonitor did not have an RSP estimate, we used an alternative approach. For 14 of the countries, we applied the percentage margin that the four brewers made to our MSP estimates, and for eight of the countries we used Euromonitor's percentage margin. Finally, for the remaining eight countries we used regional percentage margins.

To estimate sales taxes paid, we used each countries sales tax rate published by PwC and subtracted this from the RSP. This approach means our VAT estimates are tied to the location where the revenue is generated. To estimate the excise duties paid on beer purchases, we utilised data on country excise rates as a percentage of RSP provided by the WBA. This is removed from the calculation of the distributors' margin. It should be noted our estimate for beer sales tax (combining the VAT/ sales tax and excise duties in each country) are captured in the downstream value chain's direct impact, rather than the brewers' impact.

We applied GDP, employment, spending, and wage ratios using averages from national statistics for the accommodation and food sector for off-trade activity, and wholesale and retail sector for on-trade activity in each country to the margins estimated in order to estimate each of these metrics. We used the average spend profile for each country for these sectors to disaggregate spending by region and sector in order to inform our estimates for the supply chain (indirect) impacts.

OXFORD ECONOMICS

Oxford Economics was founded in 1981 as a commercial venture with Oxford University's business college to provide economic forecasting and modelling to UK companies and financial institutions expanding abroad. Since then, we have become one of the world's foremost independent global advisory firms, providing reports, forecasts, and analytical tools on more than 200 countries, 100 industries, and 8,000 cities and regions. Our best-in-class global economic and industry models and analytical tools give us an unparalleled ability to forecast external market trends and assess their economic, social, and business impact.

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