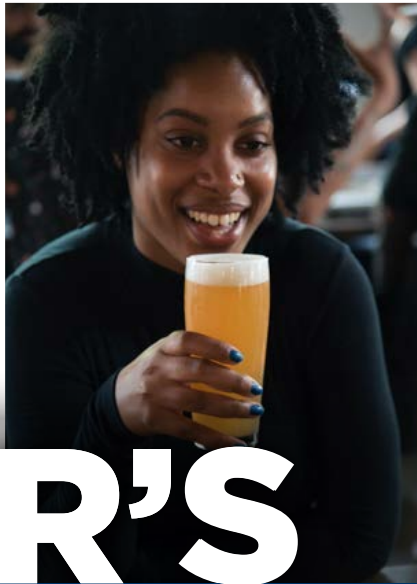




OXFORD
ECONOMICS



BEER'S GLOBAL ECONOMIC FOOTPRINT

JANUARY 2022



TABLE OF CONTENTS

Foreword	2
Glossary	5
Executive summary	6
1. Introduction	14
1.1 Introduction to economic impact analysis	16
1.2 Layout of the remainder of the report	18
2. Total beer sector's impact on the global economy	20
2.1 The beer sector is especially important to certain countries	20
2.2 Brewers help raise average productivity	23
2.3 Beer's downstream value chain provides plentiful job opportunities	24
3. Brewers' impact on the global economy	28
3.1 Brewers' direct impact	29
3.2 Supply chain (indirect) impact of brewers	29
3.3 Consumer spending (induced) impact of brewers	31
3.4 Total impact of brewers	31
4. Beer distributors, retailers, and hospitality sector's impact on the global economy	34
4.1 Beer distributors, retailers, and hospitality's direct impact on the economy	35
4.2 Supply chain (indirect) impact of beer distributors, retailers, and hospitality	35
4.3 Consumer economy (induced) impact of beer distributors, retailers, and hospitality	37
4.4 Total impact of beer distributors, retailers, and hospitality	37
Annex 1: historical trends	40
Annex 2: additional charts	42
Appendix	44

FOREWORD

For centuries, brewers have been at the heart of local communities - 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 it is enjoyed in other parts of the world. Beer is a local business with global reach and relevance.

For the first time, we have a holistic view of that global impact. This report by Oxford Economics (commissioned by The Worldwide Brewing Alliance [WBA] representing 80% of world beer production), explores in detail the total global economic contribution of beer. While many previous studies exist for individual countries, none have ever attempted 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. We have learned things we suspected, but never previously had data to verify: brewing is a highly productive activity, with spillovers 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 so important to rising incomes.

Our commitment to the long-term success of our communities spans economic, social and environmental development. Beer is a naturally low-alcohol, 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 in local impacts at national level in each country. As the lowest-

strength alcohol option for consumers, beer can play a positive role in social development. With innovative products like low- and no-alcohol options and brand-led messaging that empowers and encourages consumers to make responsible choices, beer can be part of the solution for reducing the harmful use of alcohol. In addition, we are investing to reduce water use, energy consumption and CO₂ emissions within breweries and across the extended supply chain.

At the heart of this global impact are brewers themselves. When COVID19 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. Our aim is to leverage our role as brewers, employers, and as partners, to continue to responsibly contribute to our communities and society. This report strengthens the foundation to move that vision forward.



A handwritten signature in black ink, appearing to read 'JK', written over a white background.

Justin Kissinger
President & CEO
Worldwide Brewing Alliance





GLOSSARY

The following terms are used throughout this report:

Beer sector: Brewers, beer distributors, retailers, and hospitality firms.

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 2019 prices and exchange rates unless otherwise specified.

Direct channel of impact: 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.

EBITDA: Earnings before interest, tax, depreciation, and amortisation.

Global beer sector: The brewers, beer distributors, retailers, and hospitality firms in the 70 countries included in this report: Argentina, Australia, Austria, Belgium, Bolivia, Botswana, Brazil, Bulgaria, Cambodia, Canada, China, Colombia, Croatia, Czechia, Denmark, the Dominican Republic, the Democratic Republic of the Congo, Ecuador, El Salvador, Estonia, Eswatini, Ethiopia, Finland, France, Germany, Ghana, Greece, Honduras, Hungary, India, Indonesia, Italy, the Ivory Coast, Jamaica, Latvia, Lesotho, Lithuania, Luxembourg, Malaysia, Mexico, Mozambique, Myanmar, Namibia, the Netherlands, Nigeria, Norway, Panama, Paraguay, Peru, Poland, Portugal, Ireland, Romania, Russia, Rwanda, Slovakia, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Tanzania, Uganda, the United Kingdom, Ukraine, the United States, Vietnam, and Zambia.

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.

Indirect channel of impact: The economic activity that the beer sector supports in the supply chain by purchasing inputs of goods and services from suppliers.

Induced channel of impact: The economic activity the beer sector stimulates by paying its staff wages and supporting wages along the supply chain.

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.

Upstream value chain: Businesses in the beer sector's supply chain, and concomitant, onward supply chain linkages.

EXECUTIVE SUMMARY

\$555 billion

GDP supported
by the beer sector
globally
in 2019.



While making and delivering the beer people love, the activities of the beer sector sustain considerable amounts of GDP, jobs, and government revenue in economies around the globe.

Brewers and beer's downstream value chain make important *direct* contributions, deliver substantial *indirect* impacts by buying goods and services from their suppliers, and *induce* further economic activity by paying wages and supporting wages along the supply chain.

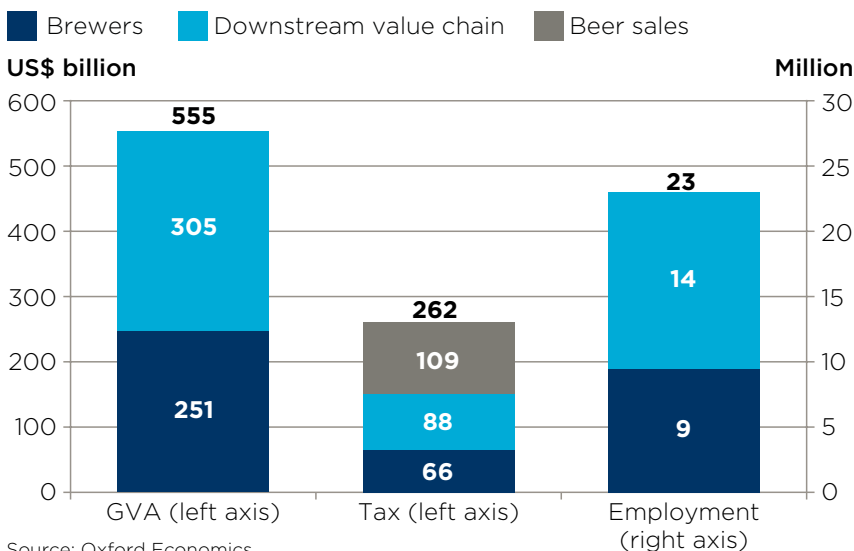
Beer is important to economies all over the world. We demonstrate this through our first-of-its kind analysis, which takes a global perspective to estimate the beer sector's economic footprint. In doing so, we assess the beer sector across 70 countries, covering 89% of beer sold worldwide, by volume. Our analysis comprises all aspects of the beer value chain, from brewers, distributors, retailers, and the hospitality industry, to the suppliers each relies on. The study relies on 2019 data (instead of 2020) because of the distortions caused by COVID-19. The effects of the pandemic mean that 2019 is more representative of a normal year for the beer sector.



BEER'S TOTAL ECONOMIC IMPACT

Based on our detailed analysis across 70 countries, we estimate that, in 2019, the beer sector's total economic impact amounted to \$555 billion gross value added (GVA) contribution to global GDP, supporting 23 million jobs. In total, the beer sector supported 0.8% of GDP across the 70 countries, or \$1 for every \$131 of GDP generated in these economies in 2019. To put that in context, beer sector's GVA contribution to global GDP is comparable with Belgium's economy in 2019 (\$533 billion) and the number of jobs supported is equal to the entire Italian labour force (23 million people).

Fig. 1: Total GVA, employment, and tax supported by the beer sector, 2019



Source: Oxford Economics
 Note: VAT and excise duties are illustrated as beer sales taxes. Subtotals may not sum to totals due to rounding.

Importantly, the economic significance of the beer sector is larger for lower income countries. While in high-income countries the beer sector contributed an average 0.9% to national GDP, in low-income economies the equivalent figure is 1.6%. Similarly, the beer sector supports a proportionally larger number of jobs in lower income than in high-income countries (1.4% vs 1.1% of national employment).

The beer sector also supports significant tax payments for global governments. Combined, we estimate that brewers and their downstream value chain made and supported \$262 billion in tax payments to governments around the world. Of the total tax contribution, \$109 billion are made up of VAT and excise duties paid on beer sales.

23 million
 Jobs supported by the beer sector globally in 2019.

\$1 in every \$131 GDP

The beer sector was linked in some way to \$1 in every \$131 of GDP generated globally in 2019.

1 in every 110 jobs

The global beer sector was in some way responsible for 1 in every 110 jobs in the global economy in 2019.

1.6% of GDP

In low-income and lower middle-income countries, 1.6% of national GDP was supported by the beer sector in 2019.

\$6.70 GVA

For every \$1 in GVA directly generated by brewers, a further \$6.70 GVA was supported in the global economy in 2019.

BREWERS' ECONOMIC IMPACT

Brewers' total contribution is estimated to have accounted for almost half (45%) of the total GDP impact (some \$251 billion) and supported 9.5 million jobs among brewers, in the supply chain, and in the consumer economy. Furthermore, brewers supported \$66 billion in tax payments.

Brewers themselves generated a sizeable economic contribution through their own activities. More specifically, we estimate that, in 2019, brewers *directly* added \$83 billion in GVA contribution to global GDP, were responsible for 600,000 jobs and contributed \$21 billion in tax payments. This means that of the brewers' total contribution, a third of the GVA and only 6% of jobs come from the *direct* channel. This shows not only that brewers are highly productive businesses, but also that they have powerful knock-on impacts on the economy.

Brewers' economic footprint extends far beyond their *direct* impact. In 2019, brewers spent an estimated \$118 billion on inputs of goods and services, buying goods and services from small, medium, and large businesses across the globe. Although brewers mostly use domestic suppliers, a share of their inputs is sourced internationally, thus fostering exports for other industries. In 2019, brewers spent \$12 billion on supplies located in a different economy, meaning 11% of purchases were imported. The manufacturing sector was the biggest recipient of brewers' international spending, accounting for half of all exports. Much of this is explained by spending on beer packaging, such as bottles and cans.

This spending triggers further activity throughout supply chains, as brewers' suppliers purchase inputs from their own suppliers, and so on. Where brewers' spending stimulates supply chain activity, it also supports more GDP, sustains additional jobs, and generates tax receipts for governments.

In total, we estimate that brewers' spending with other businesses supported a value added contribution to GDP of approximately \$108 billion in 2019. This activity is brewers' *indirect* impact, and it is estimated to have sustained 6 million jobs, and stimulated \$29 billion in tax payments to governments around the world. Consequently, brewers' supply chains accounted for almost half (43%) of brewers' total GDP contribution and nearly two-thirds (61%) of the jobs supported.

29 jobs

For every job at a brewer, a further 29 jobs were supported upstream or downstream. Ten more were supported through the induced consumer spending channel.

Furthermore, by paying staff wages and supporting wages in the supply chain, brewers stimulated additional economic activity. In 2019, we estimate brewers paid some \$16 billion in wages and salaries to their employees. Additionally, as we have seen, brewers' purchases indirectly supported jobs in other sectors, triggering further wage payments. Some, or all, of these *direct* and *indirect* wage payments will have been spent on consumer goods and services, such as housing, education, healthcare, retail, and other everyday purchases. Via this *induced* consumer spending channel, we estimate that brewers supported a \$60 billion value added contribution to GDP, some 3 million jobs, and around \$15 billion in tax payments in 2019.

BEER DISTRIBUTORS, RETAILERS, AND HOSPITALITY'S ECONOMIC IMPACT

Once beer is made, that's not the end of the impact. The rest of the beer sector's footprint extends to a diverse range of businesses responsible for putting beer into the hands of consumers. Distributors, retailers, and hospitality firms form beer's downstream value chain. Together they sustain the important economic contributions of brewers because they make it convenient for people to buy and enjoy beer at home and at social venues with family, friends, and colleagues.

The total contribution of the downstream value chain is estimated to have accounted for more than half (55%) of beer's total GDP impact. This \$305 billion value added contribution supported \$88 billion in tax payments and around three-fifths (14 million) of all jobs supported by the beer sector.

In 2019, we estimate that beer distributors, retailers, and the hospitality industry selling beer *directly* created a \$117 billion value added contribution to GDP, were responsible for 7 million jobs and contributed \$40 billion in tax payments. This means that of beer's total downstream impact, over a third of the contribution to GDP, and around half of the jobs are located in distributors, retailers, and hospitality firms themselves.

\$305 billion
 Beer distributors, retailers, and hospitality accounted for 55% of the beer's total GDP impact.

7 million
 Half of the jobs supported by the downstream value chain were located in distributors, retailers and hospitality companies themselves.

5x as productive

On average, brewers' employees are five times as productive as an average worker.

Beer distributors, retailers, and the hospitality industry have their own supply chains.

Based on the turnover of the beer downstream value chain, we estimate that these businesses spent \$107 billion on inputs of goods and services with businesses around the world in 2019. Through this spending, the downstream value chain is estimated to have *indirectly* supported a further \$98 billion value added contribution to GDP, sustained 4 million jobs, and stimulated \$27 billion in tax payments to governments. Consequently, the supply chains of beer distributors, retailers, and the hospitality industry accounted for 32% of the downstream GDP contribution alongside 29% of the downstream jobs.

Wages paid by the beer downstream value chain and the wages supported in their supply chain stimulated further activity in the consumer economy.

As a result of these wage payments, we estimate the downstream value chain's *induced* consumer spending impact amounted to \$89 billion in value added contribution to GDP, sustaining 3 million jobs, and stimulating \$21 billion in tax paid to governments around the world.

59 jobs

For every \$1 million of GVA created, the downstream value chain was directly responsible for 59 jobs.

THE BEER SECTOR CATALYSES A WIDE RANGE OF BENEFITS

Brewers are highly productive businesses that help to raise average productivity across the global economy.

The average worker at a brewer directly generated a \$141,000 GVA contribution to GDP in 2019. This is roughly five times as productive as the average worker in the 70 countries analysed in this study. 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.

Brewers also facilitate many times more jobs in the downstream value chain, upstream supply chains, and in the consumer economy.

In fact, for every job at a brewer, there are a further 29 jobs in downstream activities or in the upstream supply chain (*direct* and *indirect* channels). If we consider all three channels of impact (*direct*, *indirect*, and *induced*), for every job at a brewer, there are an additional 39 jobs in the downstream value chain, in the supply chains, or in the consumer economy.

By considering the entire beer ecosystem, it is clear that brewers and their downstream value chain have different but complementary benefits for the economies in which they operate. The combination of high productivity in the brewing sector and labour intensity in the downstream value chain enables large economic impacts across the globe.

In addition, our first-of-its-kind analysis shows that the impact of the beer sector in a given country is not always linked to its market size. As an example, although Bulgaria has one of the smallest beer markets in the world, in 2019 the country exported \$448 million worth of supplies to international brewers (3.6% of brewers' total spending with international suppliers). Half of these supplies were manufactured products such as glasses.

LOOKING FORWARD...

The beer sector and the benefits it brings have grown significantly over the last half-decade. Between 2015 and 2019, the GVA contribution to GDP supported by the global beer sector grew by 11% in inflation-adjusted terms.

The sector's strong past growth shows that it has the potential to be an important factor in economic recoveries around the world, if it can weather the ongoing challenges of the pandemic.

The beer sector was severely hit by the impact of COVID-19, as shown by the decline in sales registered in 2020. Data from companies that contributed to this study suggest that large brewers' revenues declined by about 12% in 2020. Considering the sector's strong pre-pandemic track record, we expect that the beer sector's footprint will return to growth as the world adjusts to living with COVID-19 and economies pick up steam. Using inputs from Oxford Economics, McKinsey recently estimated that the world economy could experience significant growth in the medium term.¹ In an optimistic scenario, the McKinsey and Oxford Economics research found that GDP could increase by up to 50% over the next decade, setting the basis for a new age of prosperity. The beer sector is well placed to contribute to this recovery through its contributions to GDP, jobs, and government revenues.

11% growth

Between 2015 and 2019, GVA supported by the global beer sector grew by 11% in inflation-adjusted terms.

¹Looking beyond the pandemic: Could the world economy gain more than it lost to COVID-19? | McKinsey (June 2021).

THE GLOBAL BEER SECTOR'S TOTAL ECONOMIC IMPACT

GDP IMPACT BY COUNTRY

US\$, billion (2019 prices)

140

130

120

110

100

90

80

70

60

50

40

30

20

10

0

USA CHN DEU BRA GBR ESP RUS CAN MEX KOR FRA AUS ITA IND NLD BEL VNM CHE POL ZAF PER ARG AUT IRL NOR SWE COL DNK MYS FIN DOM PRT ROU IDN NGA CZE UKR ECU E

1 in every
110 jobs



The global beer sector was in some way responsible for 1 in every 110 jobs in the global economy in 2019.

\$1

in every \$131 GDP

The beer sector was linked in some way to \$1 in every \$131 of GDP generated globally in 2019.



Brewers paid some

\$16 billion

in wages and salaries to their employees in 2019.



Global beer sector spent

\$225 billion

with suppliers in 2019.

Brewers:
\$118 billion

Downstream
value chain:
\$107 billion

GROSS VALUE ADDED (GVA) IMPACT

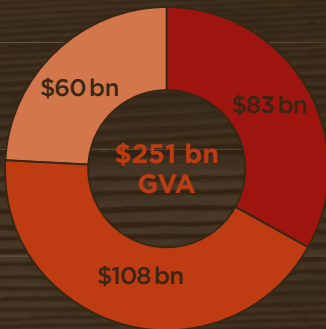
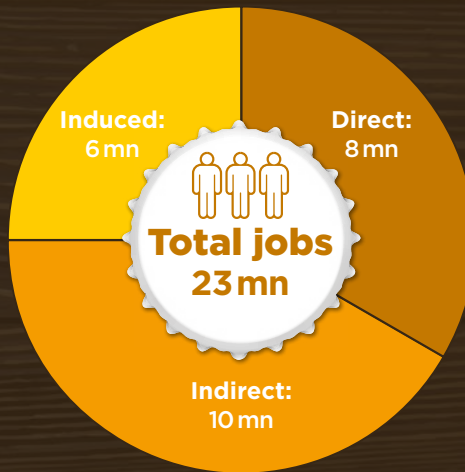
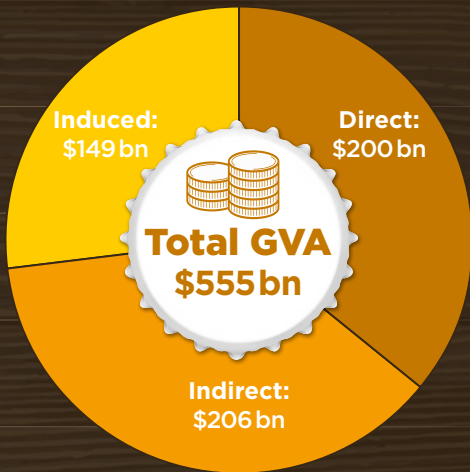
\$555 billion GVA

contribution to GDP supported by the global beer sector in 2019. This was **0.8%** of global GDP.

EMPLOYMENT IMPACT

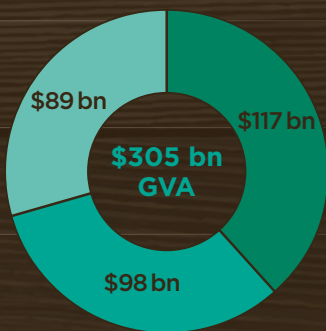
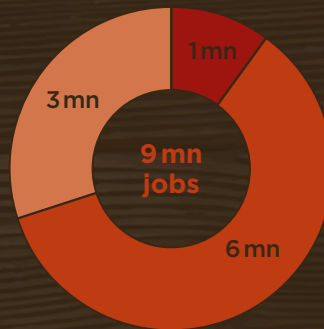
23 million jobs

sustained by the global beer sector in 2019. This was **0.9%** of total global employment.



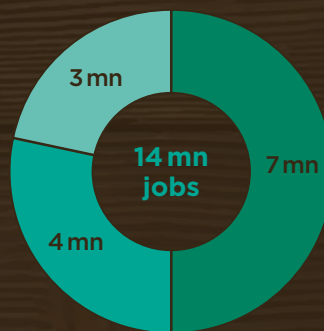
Brewers

- Direct
- Indirect
- Induced



Downstream value chain

- Direct
- Indirect
- Induced



TAX IMPACT



Brewers
\$66 bn

+



Downstream value chain
\$88 bn

+



Beer sales tax*
\$109 bn

=



Total
\$262 bn

ETH MMR GHA GRC HUN KHM BOL BGR TZA HRV CIV SVK PRY PAN LITU SVNI LUX COD UGA HND MOZ LVA BWA EST SLV LKA NAM ZMB JAM RWA LSO SWZ

* Including excise and VAT.

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

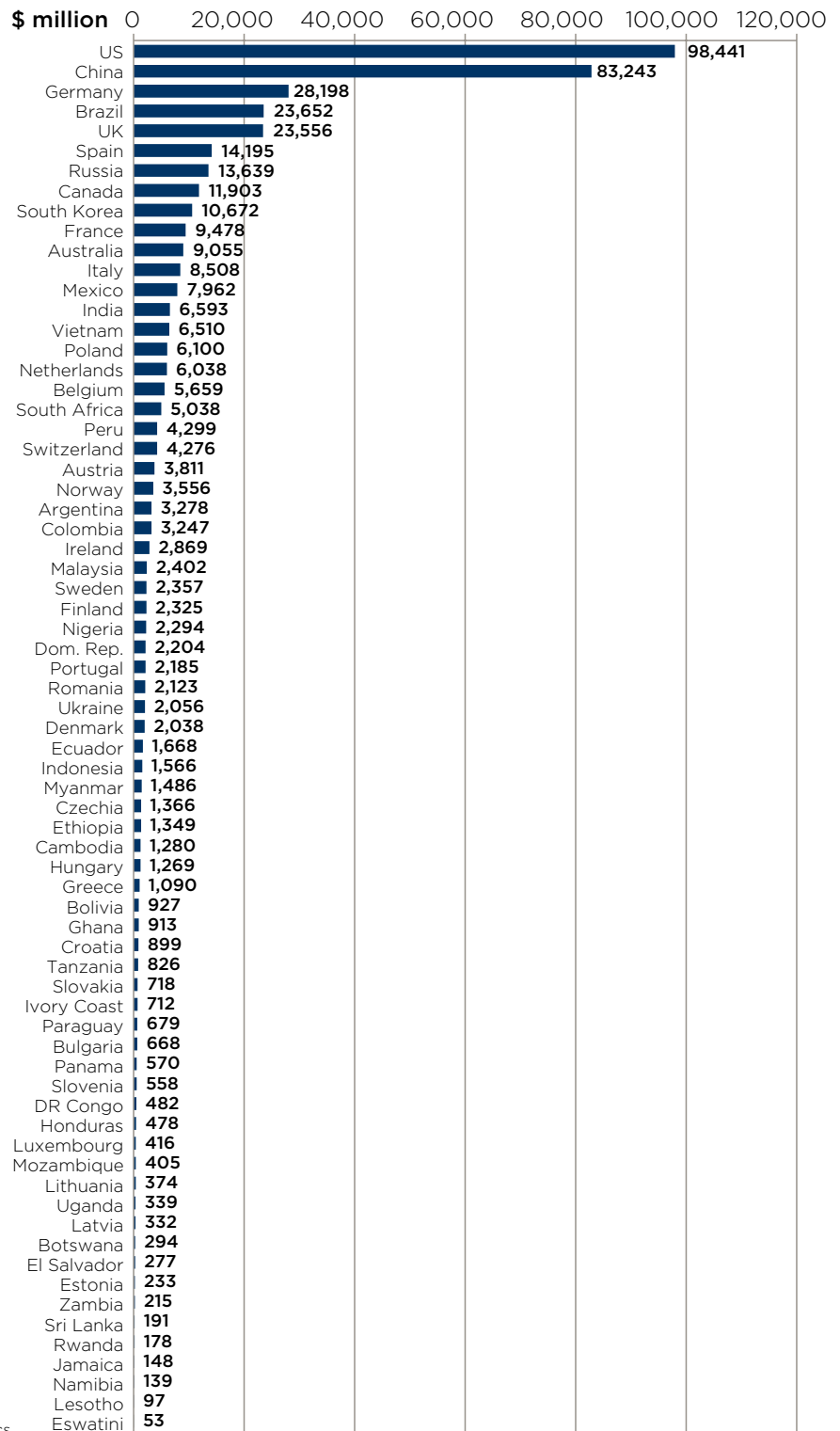


1. INTRODUCTION

To deliver beer to adults of legal drinking age around the world, the beer sector engages an immense array of people and businesses. The beer journey begins when local farmers—and exporters like France, Russia, and Argentina, the United States, Germany, and China—grow raw materials such as barley and hops.² Meanwhile, specialised manufacturers, often in countries like Brazil, China, and Peru, build vessels in which beer will later be brewed. In addition, other manufacturers—either locally based or in countries like India, Mexico, and Vietnam—fabricate bottles, cans, kegs and barrels in which beer will finally be packaged.

Brewers around the world then buy these inputs and combine them with decades—and often centuries—of traditions and expertise to brew peoples' favourite beers.

Fig. 2: Beer sales in the 70 countries included in this study



Source: Oxford Economics

² Some 89% of all the beer sector supplies are produced in the country of sale. The remaining 11% is imported from other markets. That generally happens because some countries are larger producers of certain products and export part of their production abroad, thus creating international supply chains.

At this point another group of professionals springs into action. Marketing experts, legal professionals, logistics specialists, and sales people facilitate the trade and distribution of beer to wholesalers, retailers, restaurants, bars, pubs, clubs, sports arenas, and other hospitality venues, where consumers can buy the beers they enjoy most.

The businesses that sell beer have their own supply chains. Retailers buy shelving and utilities; restaurants buy furniture and inventory services; pubs, bars, and clubs pay rent, hire interior decorators, and pay for the accounting and legal services needed to keep any business flourishing.

These intersecting patterns of business activity happen across the globe every day. In this report we quantify for the first time the total economic benefits of those activities between 2015 and 2019.³ We do this for 70 countries that in 2019 accounted for 86% of global GDP, and nearly \$485 billion in beer sales⁴, which is 89% of the global beer sector.⁵

KEY DATA SOURCES

Four large brewers—Anheuser-Busch InBev, Carlsberg Group, Heineken, and Molson Coors Beverage Company—very helpfully provided data about their 2015-2019 operations to make this study possible.⁶ The brewers supplied Oxford Economics with data from their financial, human resources, and procurement departments. These data are essential for understanding the direct GVA, employment, and tax impact of these large brewers, as well as the composition of the beer sector's global supply chains.

Oxford Economics also 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 four large brewers. In general, the four large brewers tend to be more efficient than smaller brewers, and therefore they tend to earn more GVA and profits from every dollar of revenue compared to smaller brewers.

We also used 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 (beer distributors, retailers, and hospitality firms). This is vital to ensuring that the estimates we present in this report correspond to widely acknowledged industry-sourced data about sales of beer to final consumers. In addition, we used Euromonitor, Plato Logic and IWSR data on the market shares of brewers within each of the 70 study countries. Triangulating across all data sources provides more robust estimates of the market size within each country.

Finally, 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 in the appendix to this report.

³ We have chosen to analyse the period between 2015 and 2019 because these represent 'typical' years for the global beer sector. The year 2020 was dominated by the COVID-19 pandemic, which significantly altered beer consumption patterns, with more beer being consumed at home and less consumed at restaurants, bars, pubs, clubs, and sports arenas. The global beer sector's impact in 2019 is likely to be the most representative of the impact the sector will have when the world fully emerges from the pandemic.

⁴ Measured in terms of retail sales price less tax.

⁵ This estimate uses data published by IWSR on volume of beer sold across 156 countries.

⁶ The study relies on 2019 data (instead of 2020) because of the distortions caused by COVID-19. The effects of the pandemic mean that 2019 is more representative of a normal year for the beer sector.

1.1 INTRODUCTION TO ECONOMIC IMPACT ANALYSIS

Before embarking on quantifying the contribution of the beer sector, it is important to define what activities are included. In this study, we define the beer sector as 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.

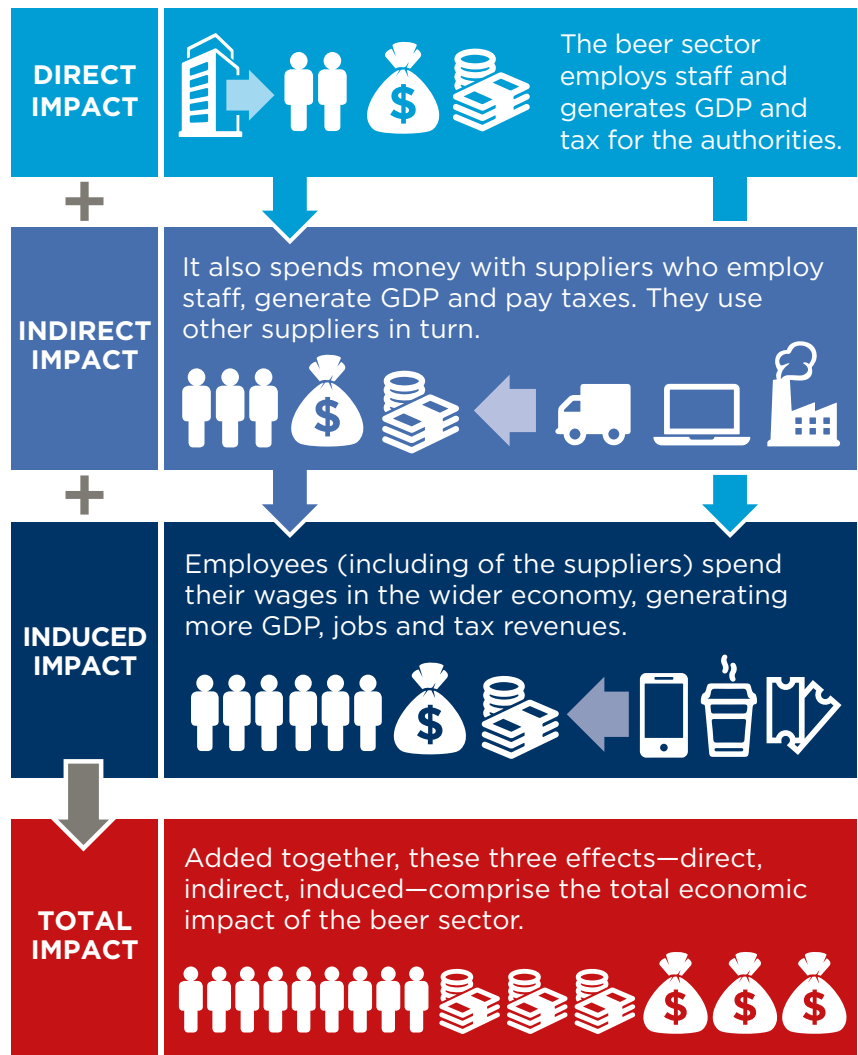
To measure the importance of the global beer sector, we employ a standard impact assessment framework. This considers three core channels through which the beer sector contributes to the global economy (Fig. 3):

- **Direct impact**, which is the economic activity that involves making and physically handling beer to consumers—from brewing beer, to transporting beer to wholesalers and retailers, and physically handling beer at restaurants, bars, pubs, clubs, arenas, and other hospitality venues (the beer sector).
- **Indirect (supply chain) impact**, which is the economic activity the beer sector supports along its supply chain.
- **Induced (consumption) 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.

The sum of these channels makes up the beer sector's total economic footprint. The results are presented on a gross basis, meaning they do not control for any displacement of activity from the beer sector's competitors or other firms. Nor do they

consider what the resources currently used in supporting the sector's economic footprint could otherwise be productively diverted towards.

Fig. 3: How we measure the beer sector's economic impact



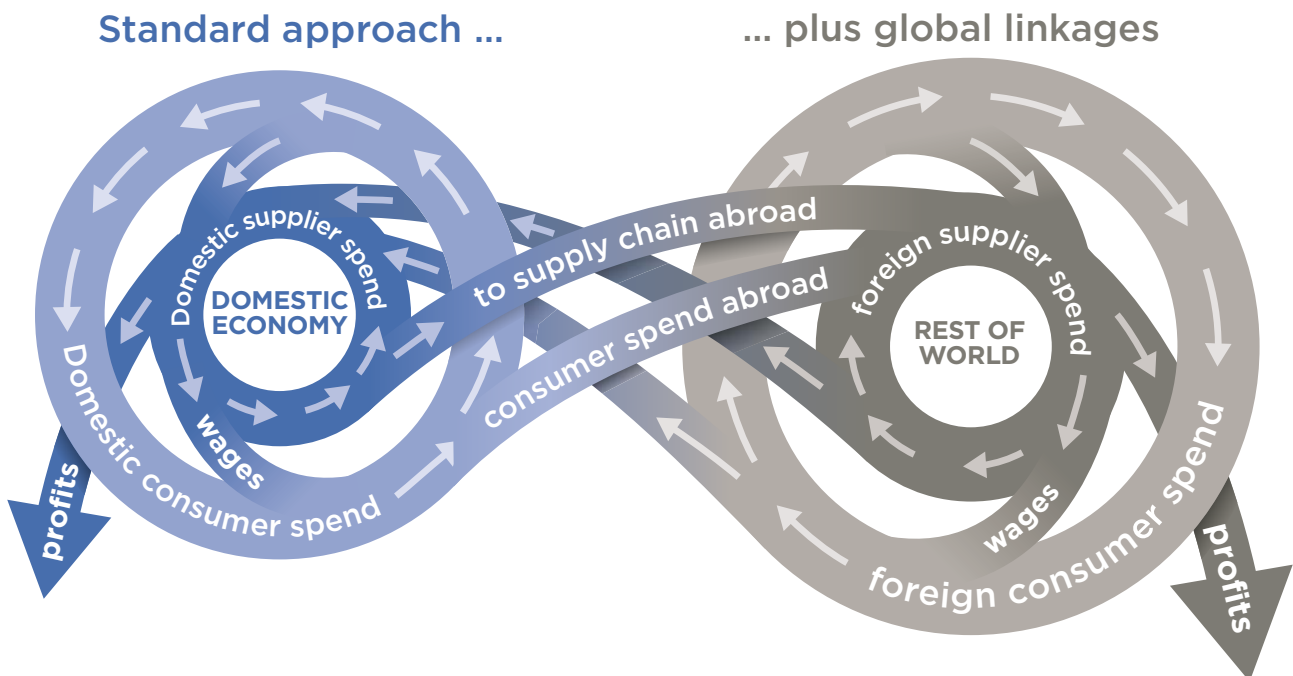
We quantify beer's contribution across these channels using three metrics of economic activity:

- **Gross value added** 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.

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 our *Global Sustainability Model (GSM)*. **Our first-of-its kind analysis takes a global perspective, going far beyond a standard national assessment to include the global linkages.** 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 (as illustrated in Fig. 4). The main advantage of this framework is that it captures the global linkages across the beer sector and its supply chain. So, for example, whereas our study will capture the economic benefits that stem from barley grown in France and exported to Germany for use by German brewers, a typical in-country economic impact study would not. A more detailed methodology discussion that explains these cross-country linkages is featured in the Appendix to this report.

Fig. 4: Our bespoke Global Sustainability Model captures spending within countries and across their borders



1.2 LAYOUT OF THE REMAINDER OF THE REPORT

The remainder of this report is structured as follows:

- **Chapter 2** sets out the total economic footprint of the beer sector, encompassing both brewers and beer's downstream value chain.
- **Chapter 3** describes the brewers' economic footprint.
- **Chapter 4** estimates the economic footprint of beer's downstream value chain.

The **Appendix** provides details of sources and methods used to create the estimates in this report. For further country-by-country detail, readers are directed to <https://worldwidebrewingalliance.org/impact/>.





2. TOTAL BEER SECTOR'S IMPACT ON THE GLOBAL ECONOMY

The global beer sector comprises brewers, beer distributors, retailers, and the hospitality industry. In this chapter, we present its total economic footprint. The following two chapters separately investigate the economic impact of brewers, and of the downstream value chain.

\$555 billion

The beer sector supported \$555 billion GVA contribution to global GDP in 2019.

23 million jobs

The beer sector supported 23 million jobs in the beer sector itself, in the supply chain, and in the consumer economy in 2019.

\$262 billion

The beer sector paid and supported \$262 billion in tax payments to governments around the world in 2019.

2.1 THE BEER SECTOR IS ESPECIALLY IMPORTANT TO CERTAIN COUNTRIES

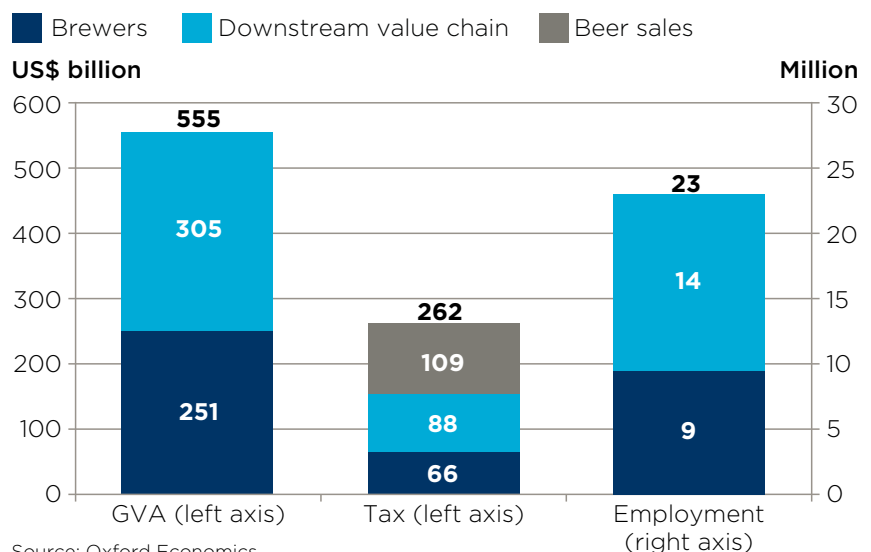
We estimate that the beer sector supported a \$555 billion GVA contribution to global GDP in 2019. This activity was associated with 23 million jobs in that year (or 1 in every 110 jobs globally), and generated tax revenues worth \$262 billion. Of the total tax contribution, \$109 billion is comprised of VAT and excise duties paid on beer sales.

The beer sector supported 0.8% of GDP across the 70 countries we analysed in this study, or \$1 for every \$131 of GDP generated in these economies in 2019. However, the economic significance is considerably larger for certain economies, notably in lower income countries.

Fig. 6 outlines the beer sector's total contribution as a share of national GDP for countries grouped by income level. The groupings are based on the World Bank classification⁷, which assigns the world's economies to four income groups—low, lower-middle, upper-middle, and high-income countries.

The beer sector is significantly more important to the national economy of low-income and lower middle-income countries. In Cambodia, the beer sector, its supply chain spending, and wage payments supported 4.3% of GDP in 2019. In Lesotho and Bolivia, the equivalent figure is 2.8%, while in Dominican Republic and Mozambique is 2.7%.

Fig. 5: Total GVA, employment, and tax supported by the beer sector, 2019

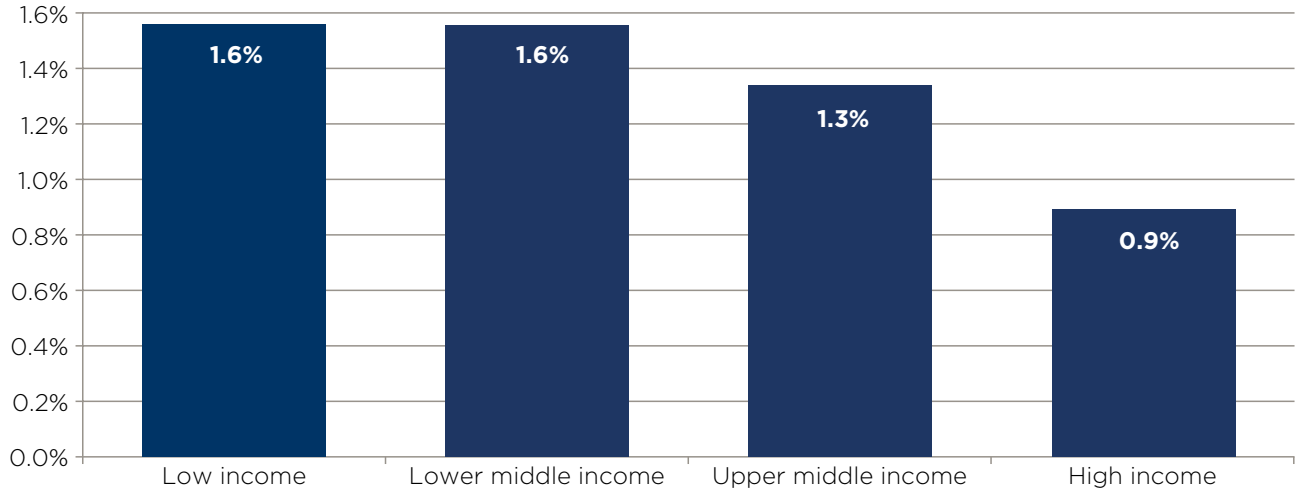


Source: Oxford Economics

Note: VAT and excise duties are illustrated as beer sales taxes. Subtotals may not sum to totals due to rounding.

Fig. 6: GDP supported by the beer sector as a share of total GDP, 2019

Average GDP supported, as a percentage of national GDP (%)



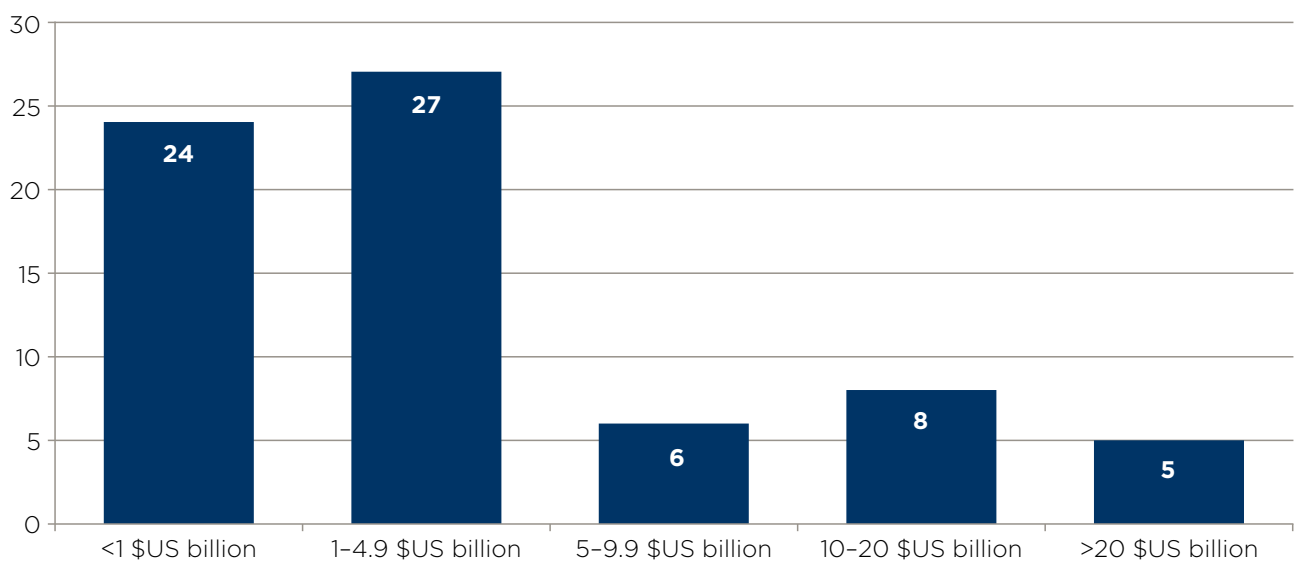
Source: Oxford Economics

In 2019, the beer sector supported more than \$20 billion of GVA in five countries—United States, China, Germany, Brazil, and United Kingdom. Their

combined contribution totalled \$321 billion. That was followed by a combined \$75 billion in GVA contributions that the beer sector supported in Spain, Russia, Canada, Mexico,

Fig. 7: Distribution of beer sector's GVA contributions, 2019

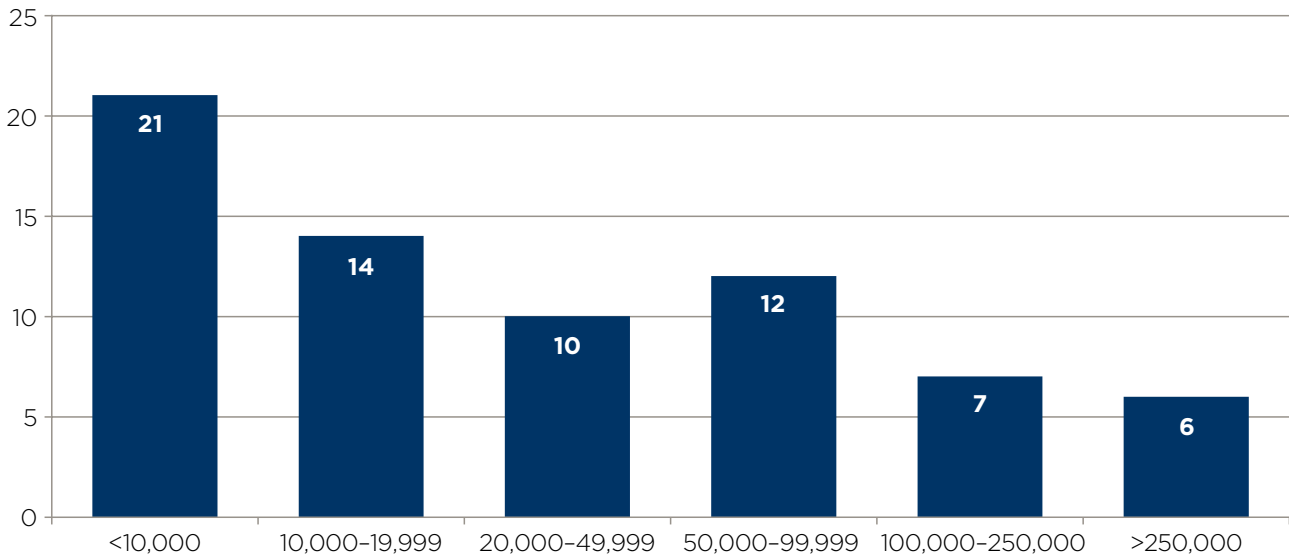
Number of countries



Source: Oxford Economics

Fig. 8: Number of jobs in the beer sector by count of country, 2019

Number of countries



Source: Oxford Economics

and South Korea.

In 2019, the beer sector directly employed 7.6 million people at brewers and in the downstream value chain. On average, the beer sector employed about 108,000 people in each of the 70 countries analysed in this study.

In six countries, the beer sector directly employed more than 250,000 people. A third of the jobs (2.5 million) were located in China, just over 10.5% in the United States, and 9.5% in Brazil. High shares of employment were located also

in Vietnam (5.5%), India (3.8%), and Germany (3.4%).

In half of the countries, the beer sector employed more than 20,000 people.

In 2019, the beer sector purchased \$225 billion worth of goods and services from its suppliers. Through these purchases, brewers and downstream value chains support other industries and countries' economies across the world, creating knock-on impacts in the global economy. For every \$1 in GVA directly generated by

brewers, a further \$4.9 GVA was supported upstream or downstream in 2019.

In the remainder of this chapter, we explore the beer sector's characteristics that drive large economic impacts across the world.

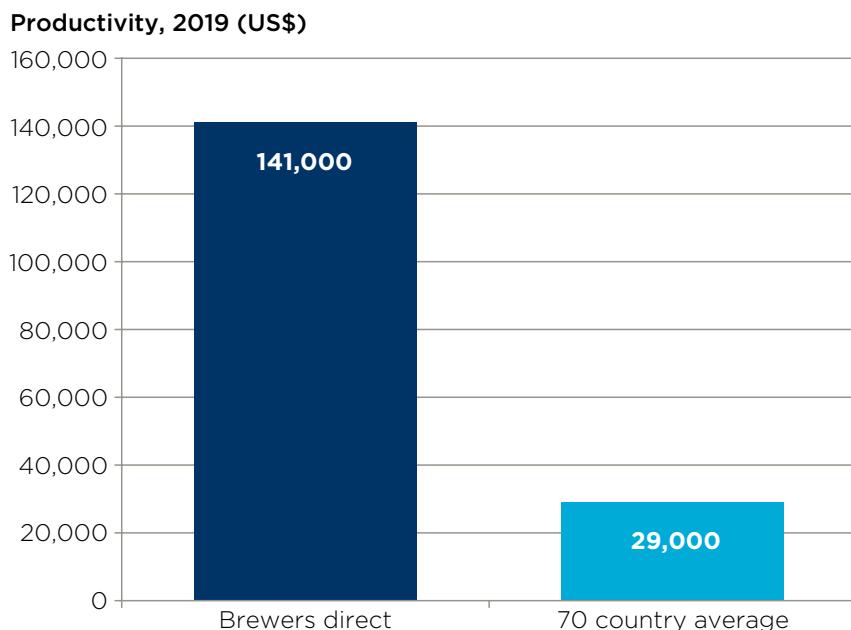
2.2 BREWERS HELP RAISE AVERAGE PRODUCTIVITY

Brewers are highly productive⁸, which helps drive economic growth in the economies in which they operate. On average, each worker employed by a brewer generated a \$141,000 GVA contribution to GDP. That is nearly five times higher than the average for all workers across all the countries included in this study. This high productivity is partly a result of brewers’ continued capital investment in new technologies requiring fewer employees to produce the same amount of beer. It is also a function of the skilled jobs that brewers offer, including in brewing, engineering, legal, marketing, accounting, and finance roles.

High productivity sectors such as brewing provide economic benefits to the rest of the economy through business interactions with their suppliers and downstream customers. For instance, it is likely that, by interacting with large multinational brewers, suppliers and downstream customers learn and adopt industry-best practices in areas like invoicing, procurement, and safety for staff. The business skills learnt and knowledge gained by brewers’ employees can also benefit other businesses when staff move jobs.

Therefore, by being highly productive themselves and stimulating productivity across the economy, brewers contribute to raising productivity in the economies in which they operate. This is important because the only way for an economy to sustainably increase wages—and therefore living standards—over time is to steadily increase the productivity of its workforce.

Fig. 9: Productivity at brewers compared to 70 country average, 2019



Source: Oxford Economics calculations

⁸ We measure productivity as the ratio of GVA to employment.

2.3 BEER'S DOWNSTREAM VALUE CHAIN PROVIDES PLENTIFUL JOB OPPORTUNITIES

The direct GVA contribution of the beer downstream value chain is 40% larger than that for brewers.

In addition, beer's downstream value chain provides numerous job opportunities, in turn supporting household incomes. When beer enters the downstream value chain, it goes on to facilitate significantly more jobs in service-intensive parts of the economy. For every \$1 million in GVA created by the downstream value chain, this

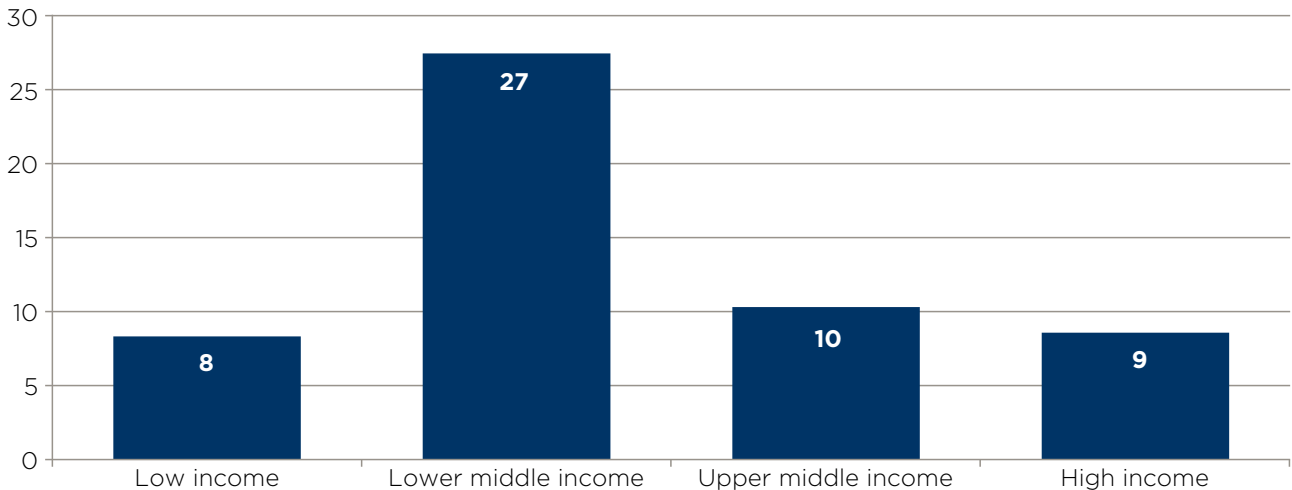
component of the beer sector is directly responsible for an estimated 59 jobs. This is over eight times the number of brewer jobs per \$1 million of GVA created by brewers.

The dual impact of making a significant direct GVA contribution and creating more jobs means that, globally, for every job at a brewer there are an estimated 12 jobs in businesses that sell beer to final consumers—whether at an on-trade or off-trade establishment.

In some countries the multiple of jobs in brewers to jobs in the downstream are even larger. For example, in Indonesia there are 109 jobs in the downstream for every job in a brewery. In South Korea, there are 45 jobs in the downstream value chain for every job at a brewer, while that figure is 47 for Vietnam.

Fig. 10: Employment among beer's downstream value chain relative to brewers, 2019

Average direct jobs in downstream relative to brewers



Source: Oxford Economics

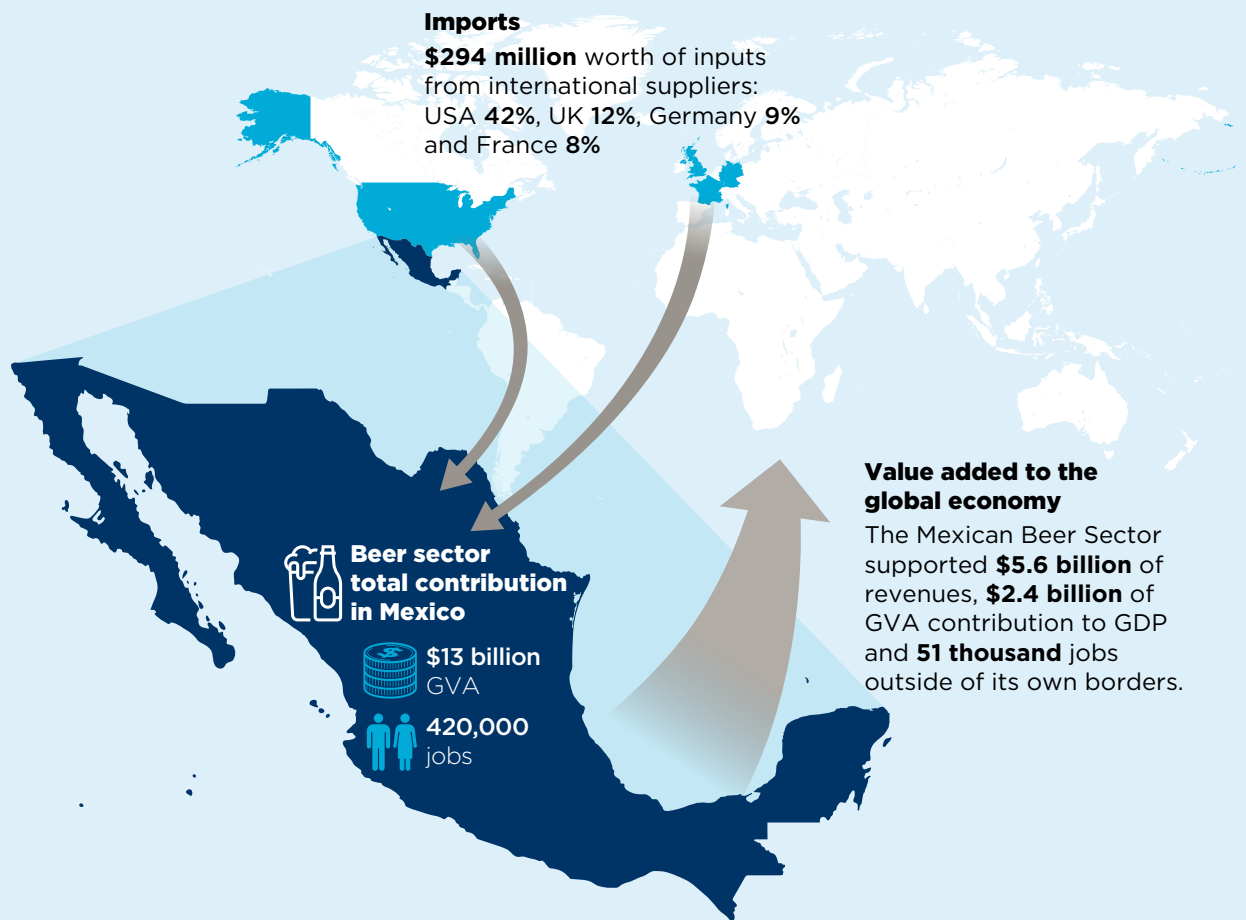
THE REACH OF THE MEXICAN BEER SECTOR ACROSS THE WORLD'S ECONOMY

Mexico has the sixth largest beer sector in the world. In 2019, the Mexican beer sector directly generated more than \$11 billion of turnover, contributed \$5 billion to national GDP, and employed 86,000 people. Extending the assessment to indirect and induced impacts, in 2019, the Mexican beer sector supported a \$13 billion GVA contribution to GDP, as well as 420,000 jobs in Mexico.

One country's beer sector does not benefit only its local economy. By purchasing international goods and services, Mexican brewers and beer's downstream value chain

generate sizable economic impacts across the world. In 2019, Mexico bought \$294 million worth of inputs from international suppliers. United States was by far the largest exporter, supplying about 42% of imported inputs (in value) to the Mexican beer sector, followed by the United Kingdom (12%), Germany (9%), and France (8%). The impact of Mexico's beer sector in these countries extends beyond its direct spending. In total, Mexico's beer sector supported the creation of \$5.6 billion of revenues, \$2.4 billion of GVA contribution to GDP and 51,000 jobs outside of its own borders.

Fig. 11: The global economic impact of Mexican beer sector





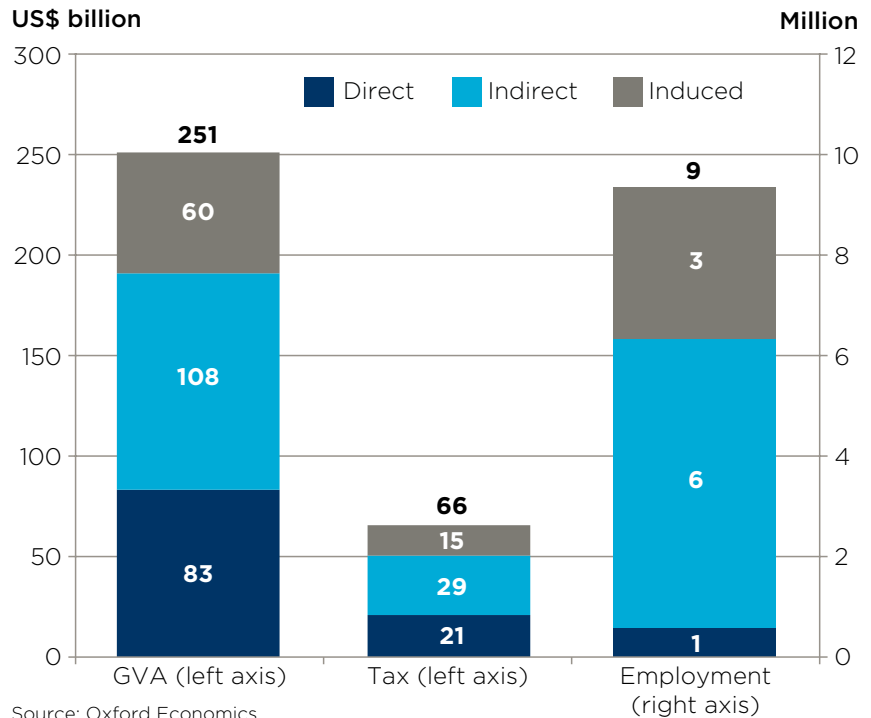


3. BREWERS' IMPACT ON THE GLOBAL ECONOMY

Brewers' impact on the global economy accounted for just under half (45%) of the beer sector's GVA contribution described in Chapter 2.

Across direct, indirect, and induced channels of impact, brewers supported a \$251 billion GVA contribution to GDP, paid and stimulated \$66 billion in tax revenue for governments, and supported 9 million jobs (Fig. 12).

Fig. 12: Total GVA, employment, and tax supported by brewers, 2019



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

\$251 billion

Across direct, indirect, and induced channels of impact, brewers supported an estimated \$251 billion GVA contribution to global GDP in 2019.

9 million jobs

Brewers supported 9 million jobs in 2019, including direct, indirect, and induced channels of impact.

\$66 billion

Brewers paid and supported \$66 billion in tax for governments around the world in 2019.

Every day, brewers around the world translate decades and even centuries of expertise to brew peoples' favourite beers, then market and sell them to distributors; this activity generates brewers' direct impact. In the process of making beer, brewers buy a wide array of inputs, including agricultural products, packaging materials, manufactured goods, and professional services; this activity supports brewers' indirect impact. In addition, brewers pay their staff wages, and support wages across the supply chain, and this leads to brewers' induced impact.

In this chapter, we explore the magnitude of the GVA, jobs, and tax contributions that brewers support across the direct, indirect, and induced channels of impact.

3.1 BREWERS’ DIRECT IMPACT

Fig. 13: Direct GVA, employment, and tax supported by brewers, 2019

GVA (US\$ bn)	Tax (US\$ bn)	Jobs (million)
83	21	0.6

Brewers’ direct contribution to the global economy relates to their own activities on-site. This includes brewers themselves, as well as a wide range of activities that are necessary for making and selling beer, including marketing, accounting, financing, purchasing, and logistical planning.

In 2019, brewers earned \$214 billion in revenue by manufacturing and selling beer to the downstream value chain, including distributors, retailers and hospitality⁹. We estimate that brewers directly generated an \$83 billion GVA contribution to global GDP from the revenue earned in this year.

Furthermore, brewers directly employed a considerable number of people. In 2019, we estimate that 600,000 jobs were located within brewers’ organisations. In the same year, we estimate that brewers paid \$21 billion in tax to governments.

3.2 SUPPLY CHAIN (INDIRECT) IMPACT OF BREWERS

Fig. 14: Indirect GVA, employment, and tax supported by brewers, 2019

GVA (US\$ bn)	Tax (US\$ bn)	Jobs (million)
108	29	6

We estimate that, in 2019, brewers’ indirect economic impacts amounted to \$108 billion in GVA contribution to global GDP, 6 million jobs, and \$29 billion in tax payments.

Brewers have rich and varied supply chains across industries and geographies. Their purchases of barley and hops stimulate economic activity for farmers, while beer packaging purchases support economic activity for manufacturers of cans, bottles and kegs. Purchases of brewing equipment including mash tuns¹⁰, lauter tuns¹¹, and fermentation tanks¹² contribute

to the economic impact of vessel manufacturers. Similarly, brewers’ expenditure on legal, accounting, and marketing services supports economic activity in the professional and business services sectors.

In total—based on data from major brewers, national statistics, and Euromonitor—we estimate that brewers spent \$118 billion with their suppliers in 2019 (Fig. 15).

An estimated 17% of that benefitted business services providers, 12% went to businesses fabricating metal products, a further 12% of brewers’ procurement expenditure benefitted transport & storage firms, and agriculture businesses benefitted from 8%.

⁹ The economic impact of these distribution channels are explored in Chapter 4.

¹⁰ Mash tun is a brewhouse vessel used for mixing ground malt with temperature-controlled water.

¹¹ Lauter tun is a vessel for separating the wort, the liquid extracted from the mashing process, from the solids of the mash.

¹² Fermentation tank is where wort is held as it ferments into beer.

The diversity of brewers' supply chains extends to the countries that benefit from expenditure on inputs. In this study we have explored how brewers' spending touched 70 countries (Fig. 16). Brewers spent \$24 billion in China, followed by \$11 billion in the United States. Businesses in Brazil and Germany supplied brewers with goods and services worth \$10 billion and \$8 billion, respectively. Suppliers in Mexico and in Russia received payments of \$7 billion and \$5 billion, respectively.

These purchases stimulated GVA, jobs, and tax impacts in their direct suppliers, and onward—rippling across the full length and breadth of the global supply chain. In 2019, we estimate that spending by brewers supported a \$108 billion GVA contribution to global GDP, 6 million jobs, and \$29 billion in tax payments to governments.

Fig. 15: Types of businesses that benefitted from brewers' spending with suppliers, 2019

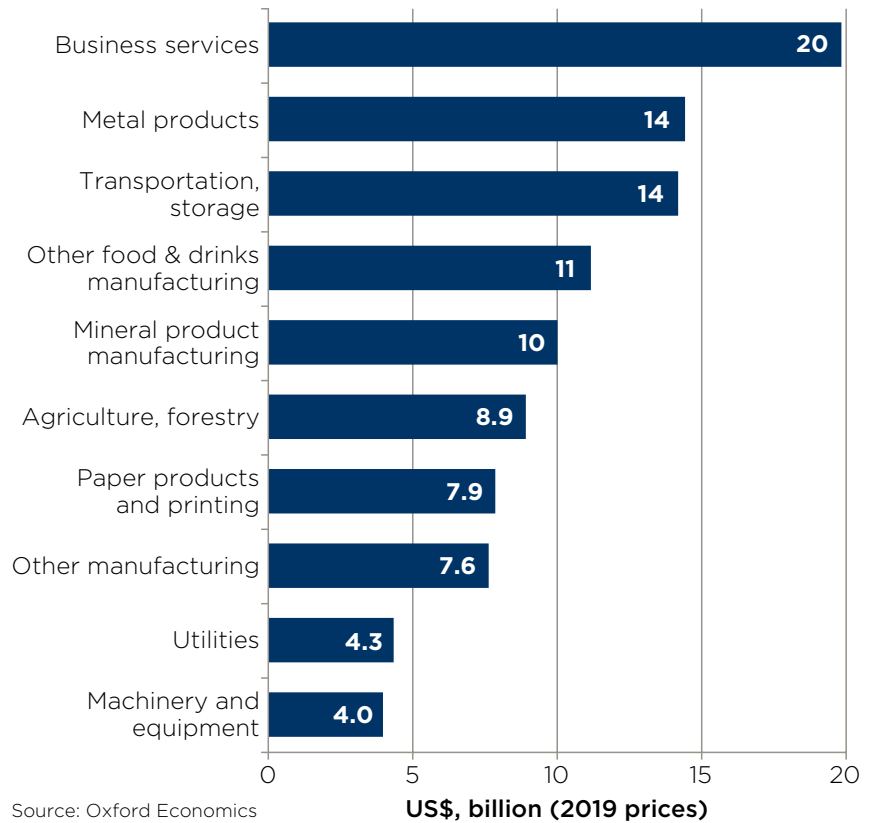
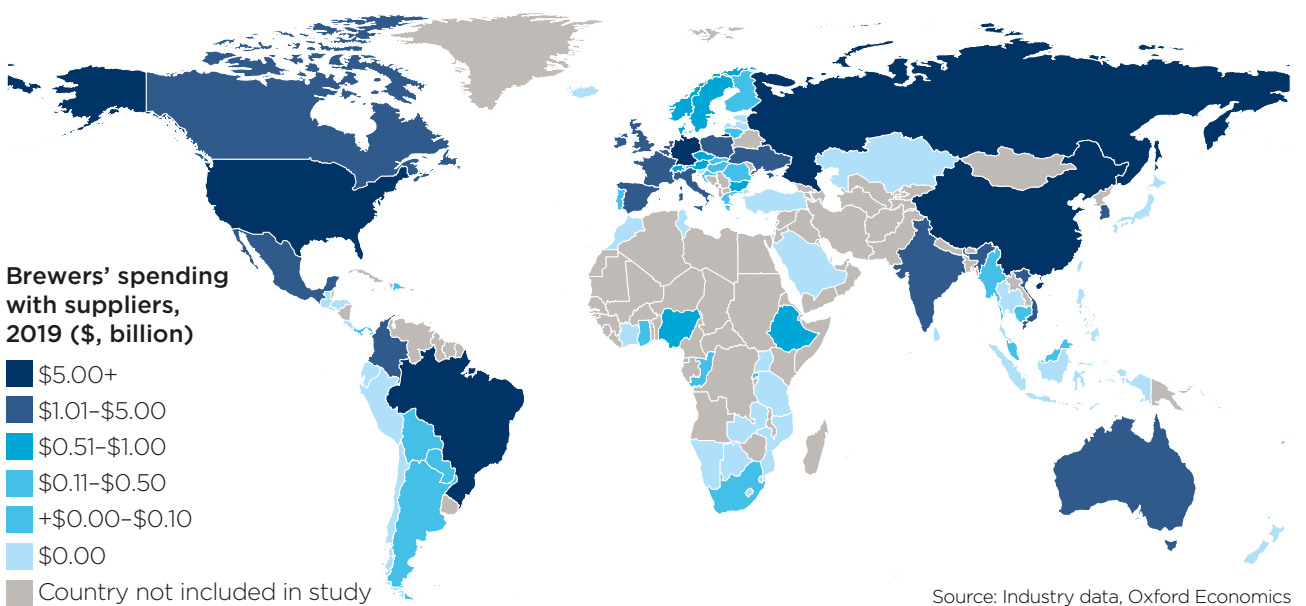


Fig. 16: Location of brewers' spending with suppliers, 2019



3.3 CONSUMER SPENDING (INDUCED) IMPACT OF BREWERS

Fig. 17: Induced GVA, employment, and tax supported by brewers, 2019

GVA (US\$ bn)	Tax (US\$ bn)	Jobs (million)
60	15	3

In 2019, based on national statistics, data from brewers themselves, and data from Euromonitor, we estimate that brewers paid \$16 billion in wages and salaries to their employees. These wages, together with those paid to people employed in brewers’ supply chains, are spent in the consumer economy, supporting activity in establishments and

their own supply chains. Using our Global Sustainability Model we are able to map how this spending ripples around the global economy.

In 2019, brewers’ induced economic impact amounted to an estimated \$60 billion GVA contribution to GDP, some 3 million jobs, and \$15 billion in tax payments to governments.

These induced impacts arise due to the wage payments made by brewers themselves, as well as the wages paid along the supply chain (with the latter having a larger effect).

3.4 TOTAL IMPACT OF BREWERS

In total—counting direct, supply chain, and consumer expenditure channels of impact—brewers supported a \$251 billion GVA contribution to global GDP. This means around \$1 in every \$289 of global GDP (or 0.3% of all GDP) was in some way supported by the brewing sector. Furthermore, brewers supported 9 million jobs and \$66 billion in tax revenues for governments.

Of the \$251 billion GVA contribution to global GDP, about 76% (\$191 billion) was supported by the economic activity of brewers and their supply chains. Focusing only on the direct and indirect channels, brewers supported 6 million jobs, which is roughly the same as all the jobs in Zambia in 2019.

Once consumer spending (induced) impacts are taken into account, the total economic activity linked to brewers is estimated to have supported 9 million jobs. To put that into context, that is similar to all the jobs in Cambodia in 2019.

At the same time, considering all impact channels (direct, indirect, and induced), brewers of beer supported an estimated \$66 billion in payments of tax to governments. This includes the tax payments made by the beer industry, its supply chain, and its consumer economy. That means that \$1 for every \$326 of government revenue in the countries in this study (0.3% of the total) was in some way supported by the operations and activities of brewers in 2019.

HOW BREWERS PROMOTE EXPORTS IN OTHER INDUSTRIES

We estimate that brewers spent \$118 billion on inputs of goods and services in 2019, of which 89% was sourced domestically. Some \$12 billion—or 11% of total procurement—was spent with suppliers located in a different economy.

While brewers' purchases from domestic suppliers stimulate national economic activity, purchases from international suppliers—imports into the economy—trigger international supply chains. The latter also represent exports from the countries where the supplying businesses are located.

By examining the composition of brewers' international procurement, we are able to observe the extent to which brewers stimulate exports in other countries and industries around the world.

Germany was the largest exporter of goods and services to brewers in other countries, supplying nearly \$2 billion in 2019, followed

by the United Kingdom (\$1 billion). Ireland is the third-largest exporter (\$700 million). The United States (nearly \$700 million) and China (\$450 million) are the only non-European nations among the top-10 largest exporters. Collectively, the top 10 exporting countries accounted for 61% of all exports of goods and services in 2019.

Digging further into the data we can examine which industries are the recipients of this spending. We find that the largest shares of international spending are received by firms in the manufacturing sector, which accounted for half of all exports. Non-beer food and drinks manufacturing (a category that includes things like adjuncts, bulk water, carbonates, flavour, and yeast), business services (like accounting, legal services, and marketing), and manufacturing of metal and mineral products (providers of cans and bottles) accounted for 20%, 17%, and 16% of exports, respectively.

Fig. 18: Brewers' international spending by country of supplier, 2019

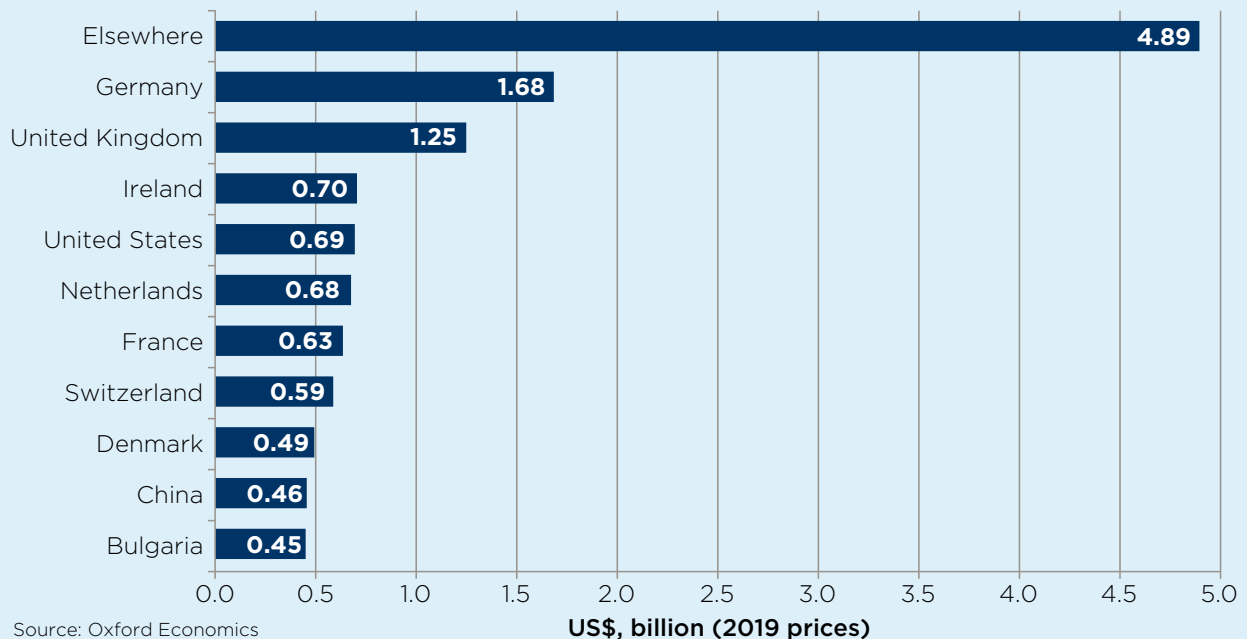
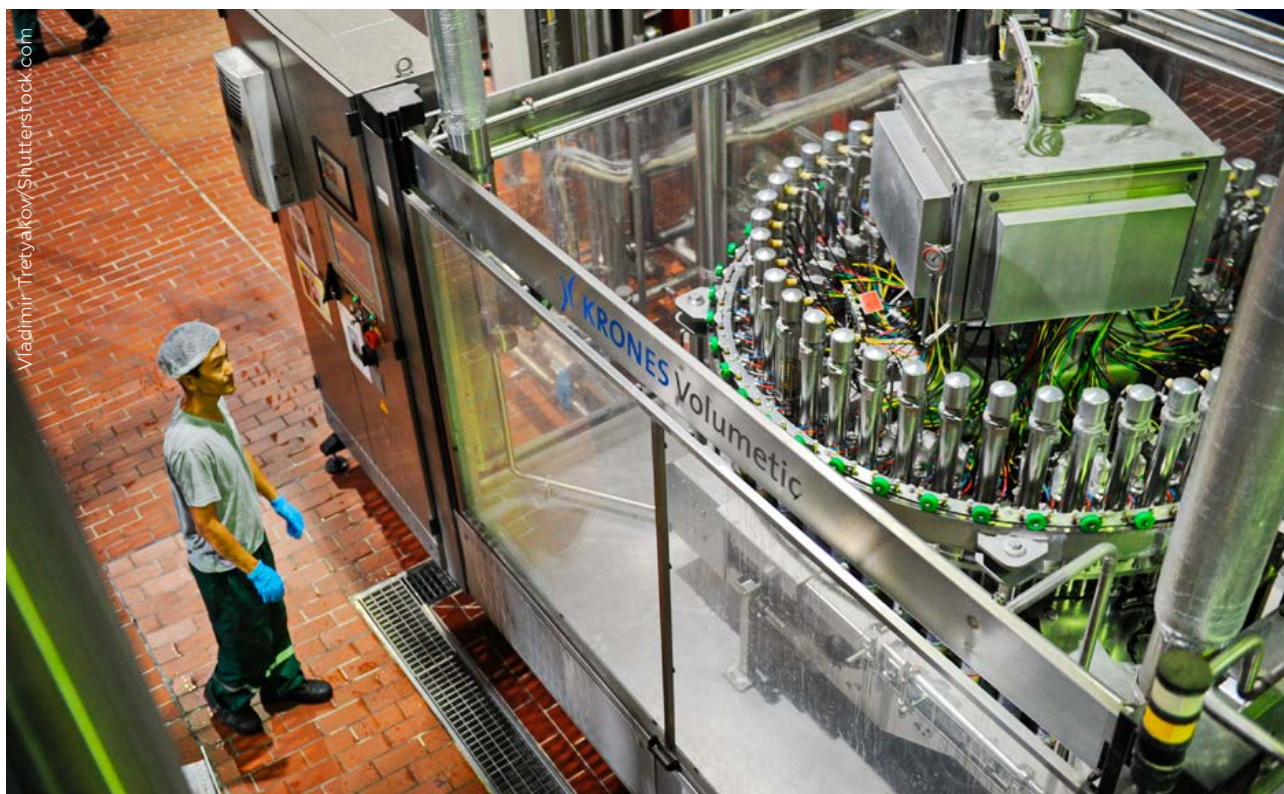
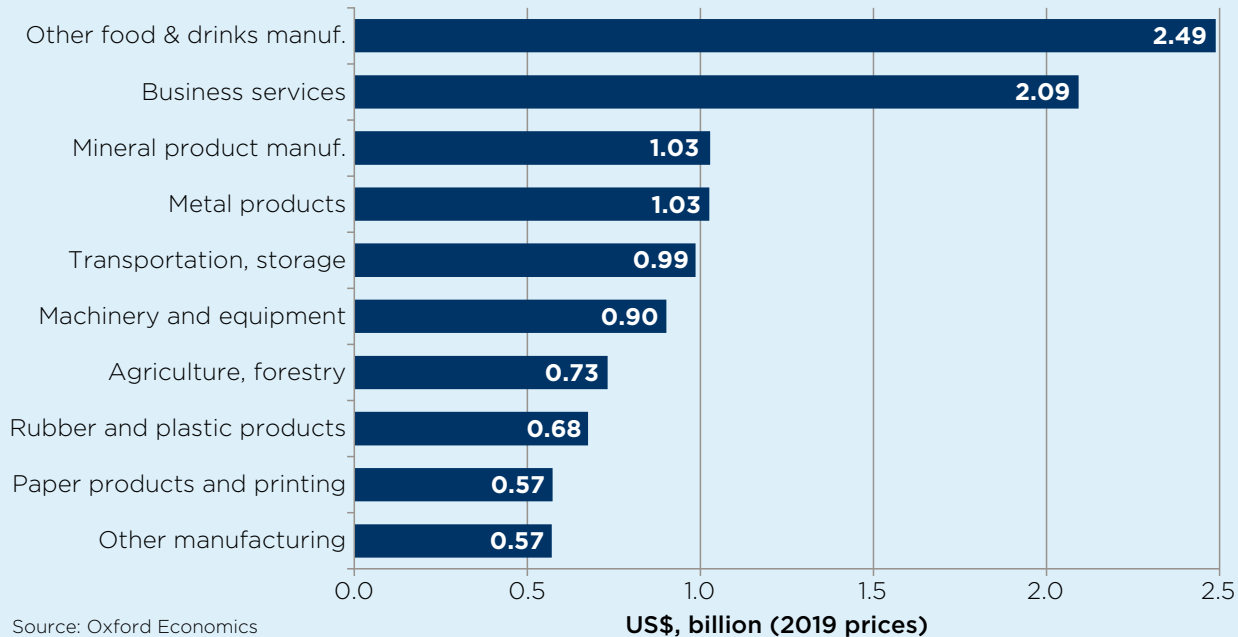


Fig. 19: Brewers' international imports by supplier industry, 2019



4. BEER DISTRIBUTORS, RETAILERS, AND HOSPITALITY SECTOR'S IMPACT ON THE GLOBAL ECONOMY

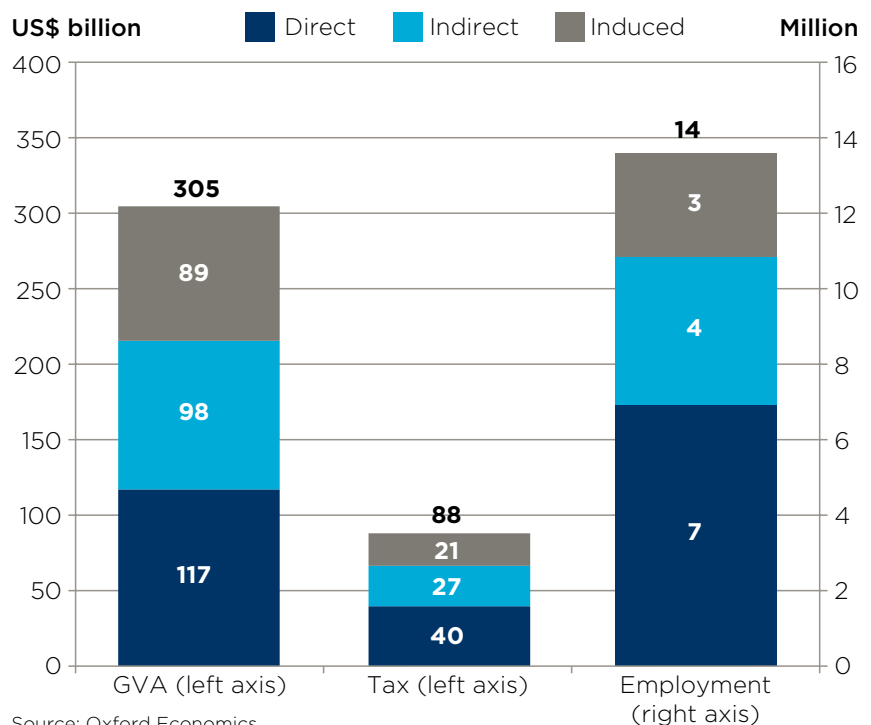
Getting beer from the brewer into consumers' hands also adds considerable economic value. Of the beer sector's total GVA contribution of \$555 billion, we estimate that 55% (\$305 billion) was connected with the downstream value chain. This economic activity was associated with 14 million jobs around the world, and \$88 billion in tax revenues.

After beer is packaged into cans, bottles, kegs, and barrels, an array of businesses spring to action to bring that beer to consumers. We refer to these businesses as beer's downstream value chain. That includes freight companies that ship beer from breweries to warehouses, grocery, and convenience stores to make it easy for people to buy and enjoy beer at home.

It also includes the restaurants, bars, pubs, clubs, sports arenas, and other hospitality venues that provide a fun atmosphere for colleagues, friends, and family to socialise and enjoy a beer together.

This chapter investigates the valuable contribution that this downstream value chain makes to the global economy.

Fig. 20: GVA, tax, and jobs supported by beer distributors, retailers, and hospitality, 2019



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

\$305 billion

Beer distributors, retailers and hospitality supported a \$305 billion GVA contribution to global GDP in 2019.

14 million jobs

Beer's downstream value chain supported 14 million jobs among distributors, retailers and hospitality, their supply chains, and in the consumer economy in 2019.

\$88 billion

Beer distributors, retailers and hospitality paid and supported \$88 billion in tax payments to governments around the world in 2019.

4.1 BEER DISTRIBUTORS, RETAILERS, AND HOSPITALITY'S DIRECT IMPACT ON THE ECONOMY

Based on data provided by brewers and Euromonitor, we estimate that beer's downstream value chain generated revenue of \$234 billion in 2019. From that revenue, the sector generated an estimated \$117 billion GVA contribution to GDP, was responsible for 7 million jobs, and remitted approximately \$40 billion in tax payments to governments.

Fig. 21: Direct GVA, employment, and tax payments generated by the downstream value chain, 2019

GVA (US\$ bn)	Tax (US\$ bn)	Jobs (million)
117	40	7

Both on-trade and off-trade beer vendors provide important—but different—services to customers. The value created by off-trade businesses comes from the efficiency of their logistics and retailing networks.

They succeed by selling the quantities of beer, among other goods, that consumers want at competitive prices. Meanwhile, on-trade businesses provide customers with enjoyable, entertaining, and comfortable experiences.

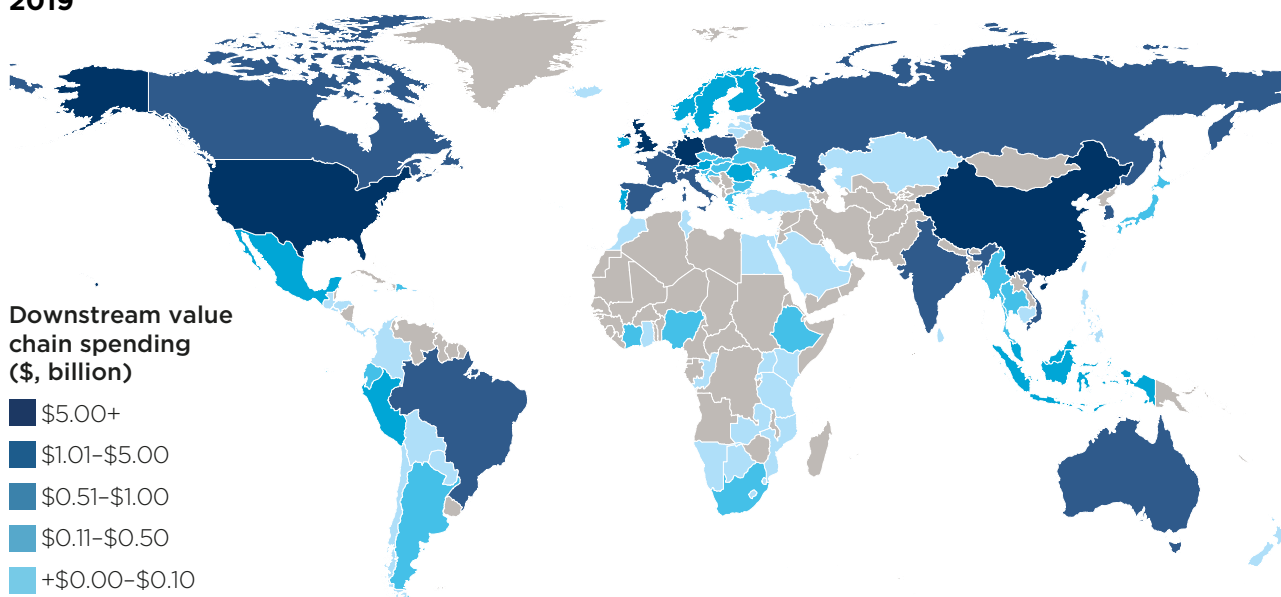
4.2 SUPPLY CHAIN (INDIRECT) IMPACT OF BEER DISTRIBUTORS, RETAILERS, AND HOSPITALITY

We estimate that the downstream value chain's indirect economic impacts amounted to a \$98 billion GVA contribution to global GDP, some 4 million jobs and \$27 billion in tax payments in 2019.

Fig. 22: Indirect GVA, employment, and tax supported by the downstream value chain, 2019

GVA (US\$ bn)	Tax (US\$ bn)	Jobs (million)
98	27	4

Fig. 23: Beer's downstream value chain's purchases of inputs of goods and services by country, 2019



Source: Industry data, Oxford Economics

The supply chains for distributors, retailers, and hospitality are very different from brewers' supply chains, but no less important. Logistics firms purchase vehicles and information technology services; grocery stores buy shelving, automated self-checkout machines, marketing services, and electricity; hospitality venues procure furniture, decorations, and glassware among many other things. All of these purchases stimulate economic activity along the supply chain.

In 2019, beer's downstream value chain spent an estimated \$107 billion with suppliers. Based on this expenditure, combined with Oxford Economics' data and

official national statistics on the structure of the world's economies, it is clear that brewing distributors, retailers, and hospitality's purchases benefit a wide range of countries around the globe (Fig. 23). For example, an estimated \$27 billion was spent with suppliers in the United States, \$23 billion in China, \$7 billion in Germany, and \$5 billion in the United Kingdom. Spending with businesses located in South Korea, Russia, Australia, Vietnam, Spain, and Canada totalled another \$16 billion.

Beer distributors, retailers, and hospitality's supply chain spending supported economic activity across the world. Using our Global

Sustainability Model, we find that this spending supported an estimated \$98 billion GVA contribution to global GDP. Furthermore, based on the sectors in which these impacts were felt, we estimate that beer's downstream value chain's spending with suppliers supported 4 million jobs around the world.

In addition, considering a range of taxes—including corporation tax, taxes on production (like business rates), sales taxes, and income taxes—we estimate that this economic activity stimulated \$27 billion in tax payments to governments globally.



BrazilPhotos/Alamy Stock Photo

4.3 CONSUMER ECONOMY (INDUCED) IMPACT OF BEER DISTRIBUTORS, RETAILERS, AND HOSPITALITY

In 2019, downstream value chain’s induced economic impacts totalled an estimated \$89 billion GVA contribution to GDP, some 3 million jobs, and \$21 billion in tax payments to governments.

Fig. 24: Induced GVA, employment, and tax supported by the downstream value chain, 2019

GVA (US\$ bn)	Tax (US\$ bn)	Jobs (million)
89	21	3

When the businesses in beer’s downstream value chain pay their employees’ wages—and support wage payments along the supply chain—they help stimulate economic activity in the consumer economy. Employees who received wage payments will spend some or all of their disposable income on a wide range of consumer-focused businesses,

including providers of housing, health care, education, and entertainment.

Based on data provided by brewers, national statistics offices, Euromonitor, the OECD, and UN, we estimate that the downstream value chain and companies in the supply chain paid their staff \$178 billion in wages and

salaries in 2019. By aligning the magnitude of spending to the geographies in which it was likely to be spent and typical consumer spending patterns in each economy (as mapped in our Global Sustainability Model), we can estimate the economic activity this spending supported.

4.4 TOTAL IMPACT OF BEER DISTRIBUTORS, RETAILERS, AND HOSPITALITY

Across direct, supply chain, and consumer economy channels of impact, we find that beer’s downstream value chain supported a \$305 billion GVA contribution to GDP in 2019.

This economic activity is estimated to have supported 14 million jobs around the world, and \$88 billion in tax revenues.





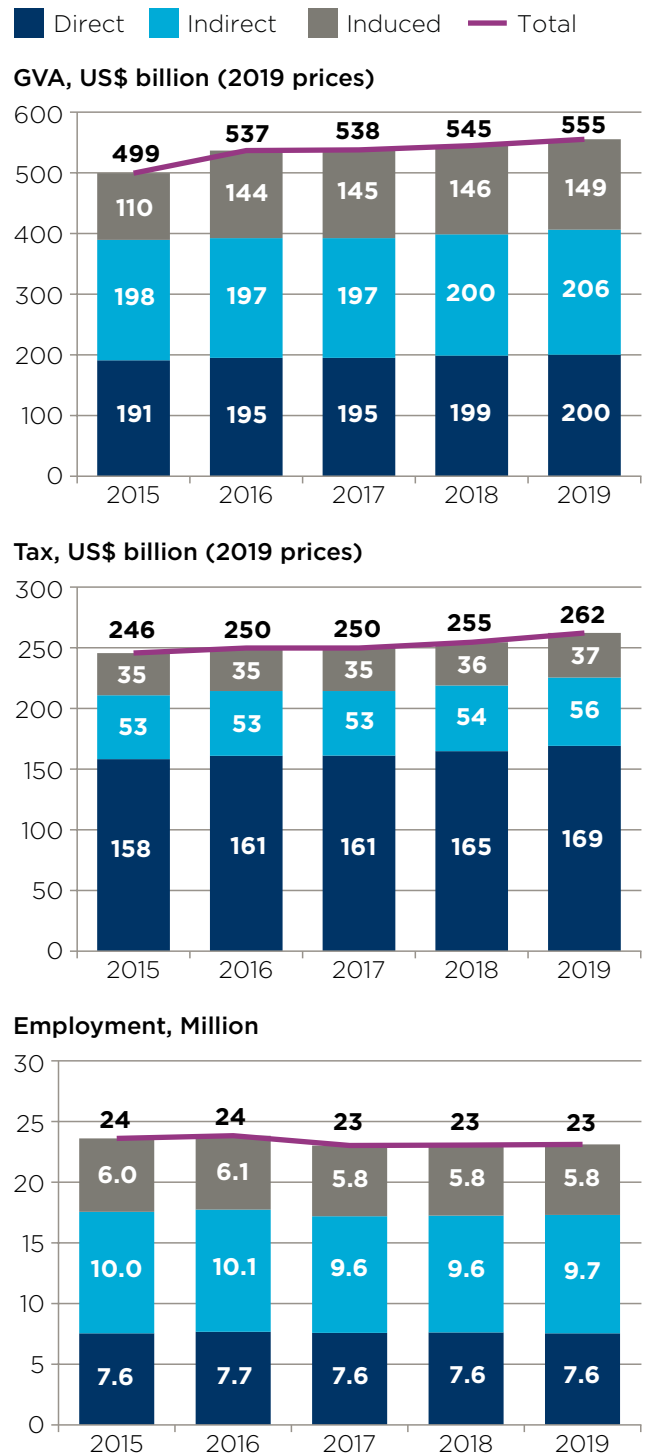
5. ANNEX 1: HISTORICAL TRENDS

5.1 THE BEER SECTOR'S ECONOMIC FOOTPRINT (2015-2019)

Our analysis shows that the global beer sector and its direct, indirect, and induced impact has steadily grown in recent years.

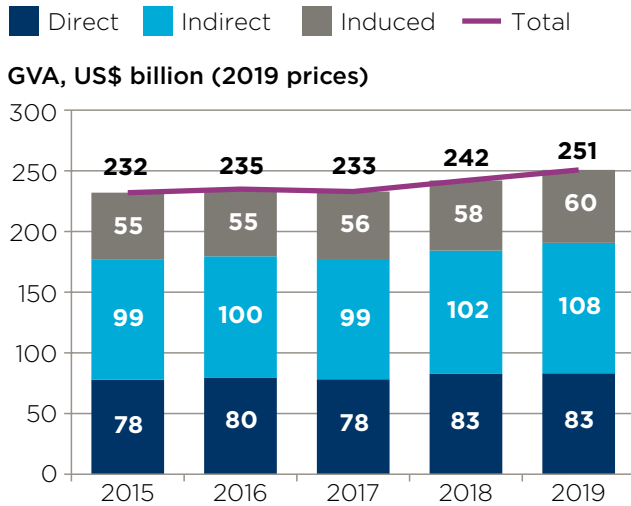
In 2015, counting all channels of impact, we estimate that the beer sector supported a GVA contribution of \$499 billion, and in 2019 we estimate that the sector supported a GVA contribution of \$555 billion, an increase of 11%. During the same period of time, employment slightly decreased: in 2015 the sector supported an estimated 23.6 million jobs, and this declined by 2.1% to 23.1 million jobs in 2019. The ability of the sector to support a growing amount of GVA with slightly fewer jobs is a natural (and typically healthy) consequence of rising productivity in the sectors and countries where employment is supported.

Fig. 25: Evolution of the global beer sector's economic contribution, 2015-2019

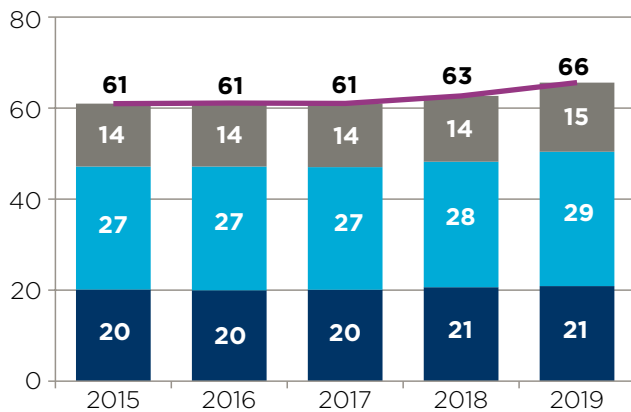


Source: Oxford Economics

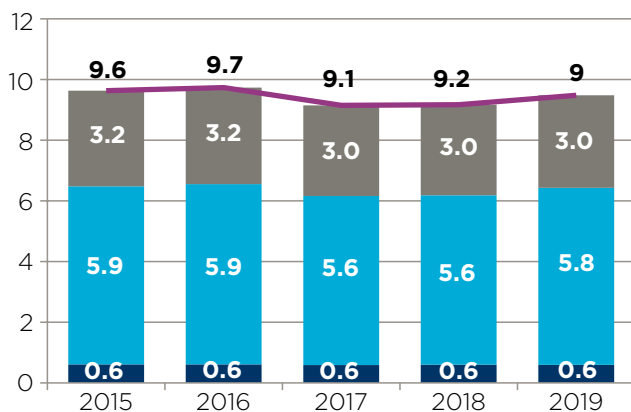
Fig. 26: Evolution of the brewers' economic contribution, 2015-2019



Tax, US\$ billion (2019 prices)

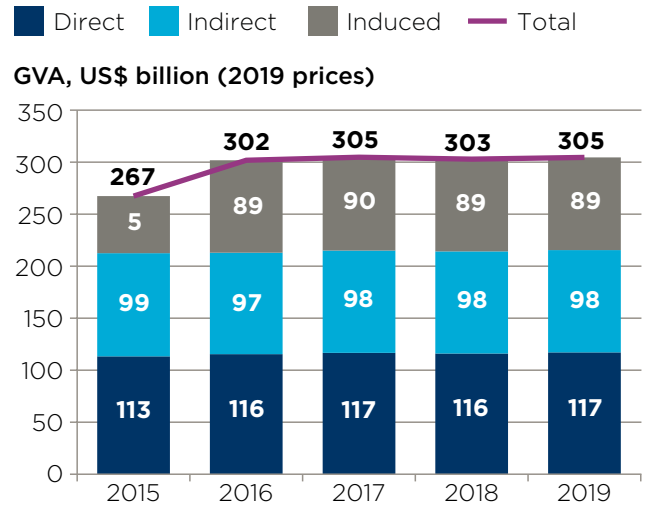


Employment, Million

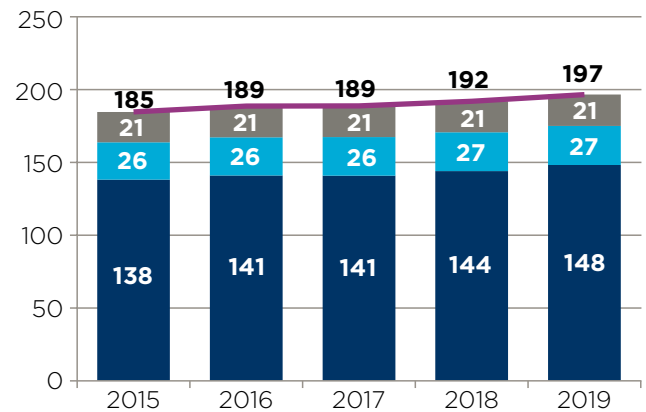


Source: Oxford Economics

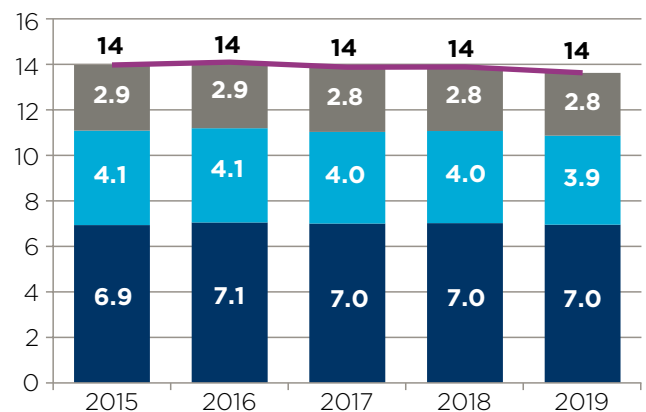
Fig. 27: Evolution of the downstream value chain's economic contribution, 2015-2019¹³



Tax, US\$ billion (2019 prices)



Employment, Million

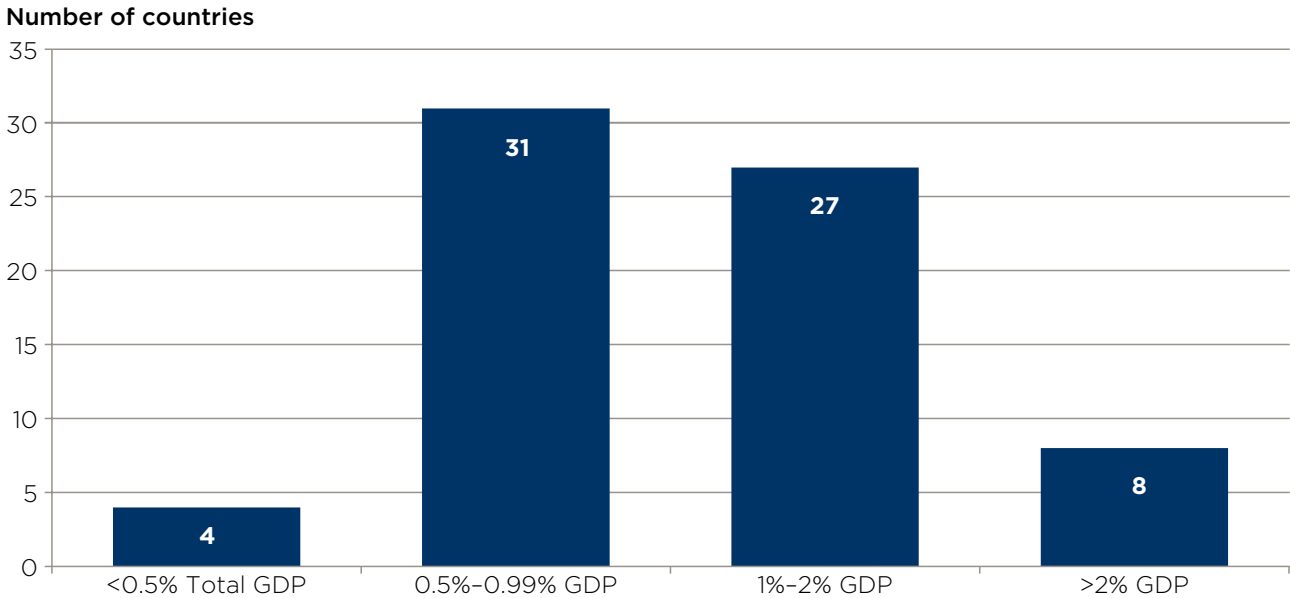


Source: Oxford Economics

¹³In this series of charts, VAT and excise duties are presented as part of the downstream value chain's tax contribution.

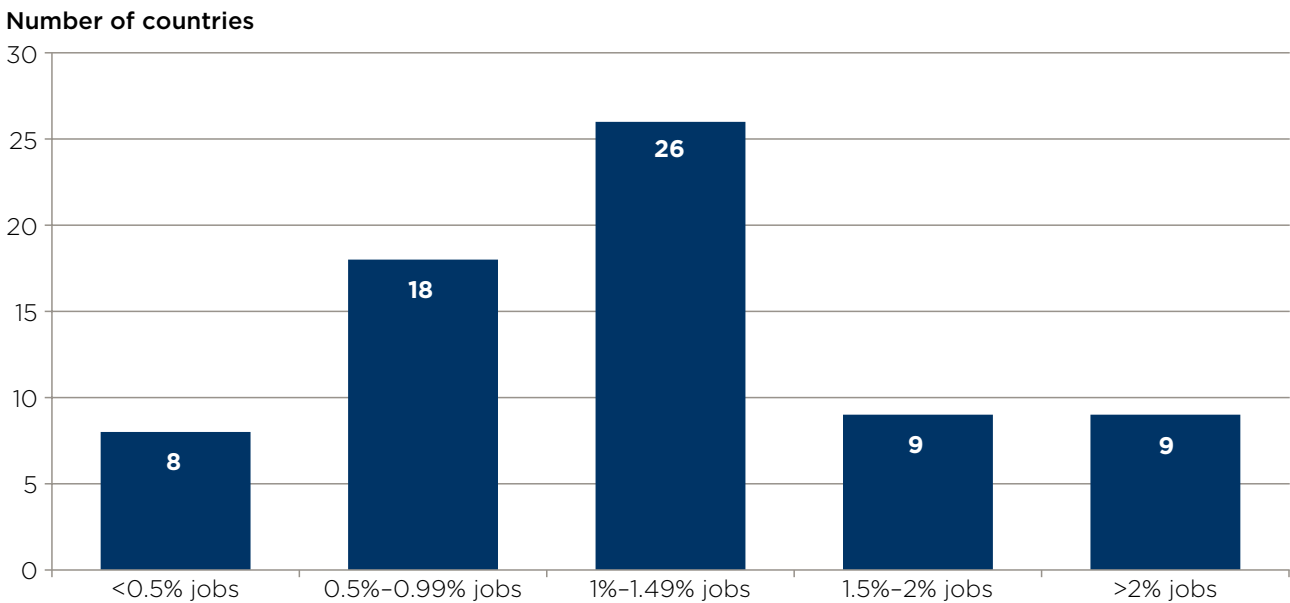
6. ANNEX 2: ADDITIONAL CHARTS

Fig. 28. Distribution of beer sector's GVA contributions as % of national GDP, 2019



Source: Oxford Economics

Fig. 29. Distribution of beer sector's job contributions as % of national employment, 2019



Source: Oxford Economics



7. APPENDIX

7.1 DATA SOURCES

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

- Anheuser-Busch InBev, Carlsberg Group, Heineken, and Molson Coors Beverage Company financial, procurement, and headcount data.
- Eurostat 'Structural Business Statistics'. Sector 'Manufacture of beer'.
- Statbel, the Belgian statistical office. Sector '11.05 Manufacture of beer'.
- Office for National Statistics, 'Annual Business Survey'. Sector '11.05 Manufacture of beer'.
- Innovation, Science and Economic Development Canada (ISED). 'Industry statistics - Breweries (31212)'.
- United States Economic Census Bureau. Sector 'Breweries'.
- Australian Bureau of Statistics.
- Finnish national statistics agency.
- Euromonitor beer market size and shares estimates.
- Euromonitor beer Retail Selling Price (RSP) and Manufacturer Selling Price (MSP) estimates.
- Plato Logic beer market size and shares estimates.
- IWSR beer market size and shares estimates.

7.2 DETAILED METHODOLOGY

7.2.1 The Global Sustainability Model

Our approach for assessing the beer sectors economic footprint across the 70 countries included in the study for the years 2015-2019 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.

We assess the economic contribution of beer sector across the following three 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 **indirect impact**: encompassing the production and employment supported across the beer sector supply chain; and
- Its **induced impact**: the wage-consumption multiplier effect that is supported by the wages paid by the beer sector and supported by the beer sector in the supply chain.

7.2.2 Inputs to the Global Sustainability Model

1. Brewers' revenue

To estimate direct, indirect, and induced impacts, we first estimated the revenue of beer manufacturers in each of the 70 study countries. For 24 of the countries, we used estimates from national statistic authorities. There were no national statistic estimates for the remaining countries. For 42 of the remaining countries, we estimated the size of the brewer's revenue by scaling up the revenue figures provided by Anheuser-Busch InBev, Carlsberg Group, Heineken, and Molson Coors Beverage Company using market share data from Euromonitor, IWSR, and Plato Logic. Where this approach was not possible or produced unfeasible results, we either used Euromonitor's estimates of the total manufacturer selling price or applied Anheuser-Busch InBev's distributor margins to Euromonitor's total retail selling price of beer to arrive at an estimate of the total revenue of beer manufacturers within the country.¹⁴

2. Brewers' direct Gross Value Added

Where possible, we used national statistic estimates of the GVA of beer manufacturing. For European countries, Eurostat data were available for the years 2015-2018. We grew the estimates of the sector in line with the growth of the four major

brewers to arrive at 2019 estimates. This technique was followed for other countries with available national statistics data. Where national statistics were unavailable, we applied GVA 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 GVA.

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 Euromonitor and IWSR. Any brewer that produced less than 500 million litres of beer a year was classed as a small to medium brewer.¹⁵

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 GVA to revenue ratio—between the four brewers (who are also classed as large brewers) and the rest of the sector. We obtained national statistics data on revenue and GVA for 24 of the 70 study countries. Across the five years of analysis, the rest of the sector is estimated to produce 17 percentage points less GVA per dollar of revenue than the four brewers.

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' GVA to revenue ratio to arrive at total GVA 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 GVA produced by smaller brewing operations. We then summed the small brewers and large brewers GVA estimates together to arrive at the total brewers GVA in a country.

3. Brewers' procurement

To estimate total procurement, we used the production approach; taking brewers GVA 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' indirect impacts.

¹⁴ Euromonitor define the manufacturer selling price (MSP) as: "MSP is the manufacturer selling price (i.e. sales at ex-factory price) therefore minus sales tax, VAT, retailer and wholesaler mark-ups etc." and the retail selling price (RSP) as: "RSP is the retail selling price (i.e. sales at end price to consumer) including retailer and wholesaler mark-ups and sales tax (except in the US and Canada) and excise taxes." Source: <https://www.euromonitor.com/frequently-asked-questions>.

¹⁵ With the exception of a few national brewers who produced just less than 500 million litres but were still classed as large due to their productive efficiency.

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 GVA to employment ratios to our estimates of GVA. As with our GVA estimates, we adjusted this to account for efficiencies across small and large brewers. We estimated that large brewers produced 8 percentage points more GVA 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 GVA ratio, derived from national statistics, to the rest of the brewing sector GVA. 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 induced impacts.

6. 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. 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.

To estimate excise duties paid by the beer sector in each of the 70 study countries, we applied an estimated tax rate to the country's domestically consumed manufacturer selling price. We estimated tax rates by country using financial data on revenue and excise duties provided by four of the largest brewers globally—Anheuser-Busch InBev, Carlsberg Group, Heineken, and Molson Coors Beverage Company. We applied regional averages of the excise duty to revenue ratios to those countries for which the brewers' financial information was not available. We compared the results for European countries and, where necessary, adjusted these using 2015-2019 beer excise duties revenue reported by Brewers of Europe¹⁶—a European association representing brewers across Europe. We made additional

checks and adjustments using publicly available data on alcohol duties revenue by country, published by the World Health Organization (WHO).

7. Downstream value chain GVA, procurement wages and taxes

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 GVA 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).¹⁷

To estimate the MSP, we adjusted our brewer's 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

¹⁶ <https://brewersofeurope.org/uploads/mycms-files/documents/publications/2020/european-beer-trends-2020.pdf>

¹⁷ Throughout the study, the manufacturers selling price (MSP) refers to the revenue paid by the downstream value chain to the brewers and the retail selling price (RSP) refers to the total beer sales of the downstream value chain.

& porter)’ sector between 2015 and 2019.¹⁸ 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).¹⁹ For 36 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 19 of the countries, we applied the percentage margin that the

four brewers make to our MSP estimates, for 11 of the countries we used Euromonitor’s percentage margin and applied this to our MSP estimate or used Euromonitor’s absolute margin directly. Finally, for Australia we used the percentage margin used in a recent ACIL Allen report and applied this to our MSP figure.²⁰

To estimate sales taxes paid, we used each countries sales tax rate published by PwC and subtract this from the RSP.²¹ This implies that our VAT estimates are tied to the location where

the revenue is generated.

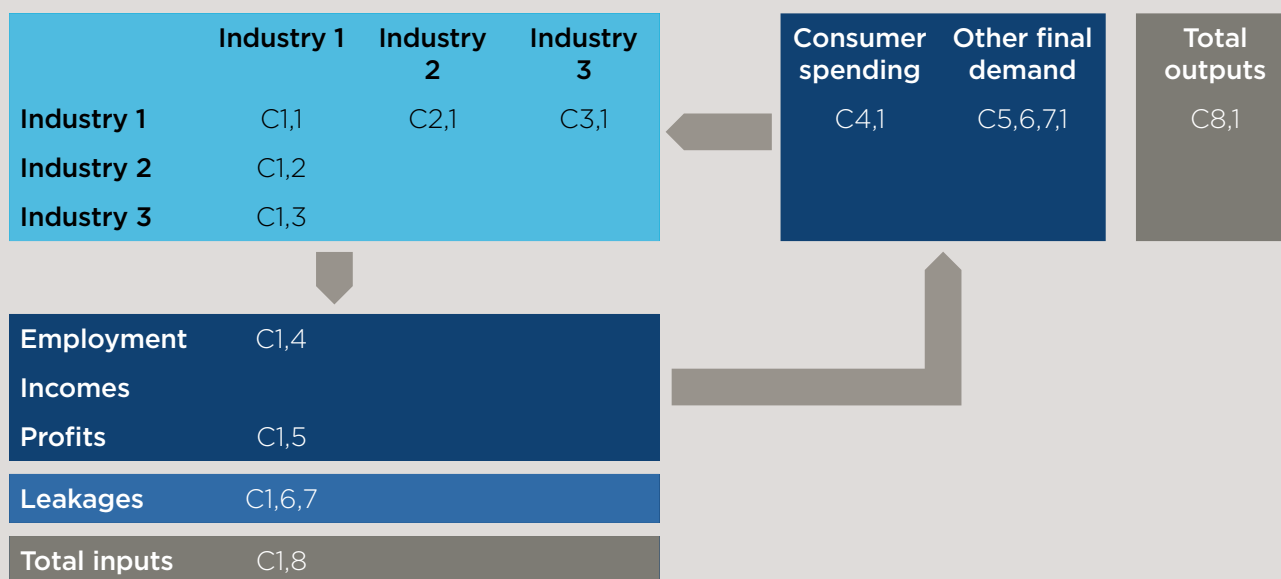
We applied GVA, employment, spending, and wage ratios using averages from national statistics for the accommodation and food sector and wholesale and retail sector in each country to the margins estimated in order to estimate each of these metrics. We used the average spend profile for each country for these sectors to disaggregate spending by region and sector in order to estimate indirect impacts.

7.2.3 Global Sustainability Model adjustments

Oxford Economics’ Global Sustainability Model (GSM) was extended and adapted specifically for this study. This is a bespoke input-output model covering 96 countries that account for 97% of

global GDP, and a “rest of the world” category. Each country’s economy is split into 36 industries that are defined by the ISIC Revision 4 classification.²²

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



¹⁸ <https://comtrade.un.org/data>.

¹⁹ Source: Euromonitor (2021) “Total Value RSP”.

²⁰ ACIL Allen Consulting, (2021), “Economic contribution of the Australian brewing industry 2019-20: from producers to consumers.” Report prepared for Brewers Association of Australia, Canberra.

²¹ [https://taxsummaries.pwc.com/quick-charts/value-added-tax-vat-rates#:~:text=Sales%20and%20use%20tax%3A%2011.5,business%20services%20and%20designated%20services.&text=22%20\(reduced%2010%25%20VAT%20rate,to%20certain%20goods%20and%20services\).](https://taxsummaries.pwc.com/quick-charts/value-added-tax-vat-rates#:~:text=Sales%20and%20use%20tax%3A%2011.5,business%20services%20and%20designated%20services.&text=22%20(reduced%2010%25%20VAT%20rate,to%20certain%20goods%20and%20services).)

²² United Nations, (2008), International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4

The model takes advantage of techniques originally developed by the Nobel Prize winning economist Wassily Leontief. These techniques allow us to trace supply chain and consumer spending within countries and across their borders.²³ 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 Global Sustainability Model 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 major 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.²⁴

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 geography 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 GVA estimates to employment estimates. To do so, we divide our GVA estimates by estimates and/or forecasts of the ratio of gross value added to workers in each country and industry.

²³ Wassily Leontief, (1986), *Input-output Economics*.

²⁴ United Nations Statistics Division, (2019), "National Accounts Official Country Data". Data pertains to 1999-2017 depending on the country. Data downloaded November 2019.



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, 250 industrial sectors, and 7,000 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.

Headquartered in Oxford, England, with regional centres in New York, London, Frankfurt, and Singapore, Oxford Economics has offices across the globe in Belfast, Boston, Cape Town, Chicago, Dubai, Dublin, Hong Kong, Los Angeles, Melbourne, Mexico City, Milan, Paris, Philadelphia, Stockholm, Sydney, Tokyo, and Toronto. We employ 450 full-time staff, including more than 300 professional economists, industry experts, and business editors—one of the largest teams of macroeconomists and thought leadership specialists. Our global team is highly skilled in a full range of research techniques and thought leadership capabilities from econometric modelling, scenario framing, and economic impact analysis to market surveys, case studies, expert panels, and web analytics.

Oxford Economics is a key adviser to corporate, financial and government decision-makers and thought leaders. Our worldwide client base now comprises over 2,000 international organisations, including leading multinational companies and financial institutions; key government bodies and trade associations; and top universities, consultancies, and think tanks.

January 2022

All data shown in tables and charts are Oxford Economics' own data, except where otherwise stated and cited in footnotes, and are copyright © Oxford Economics Ltd.

This report is confidential to the Worldwide Brewing Alliance and may not be published or distributed without their prior written permission.

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

To discuss the report further please contact:
Ian Saxon: isaxon@oxfordeconomics.com
Daniel Dass ddass@oxfordeconomics.com
Evie Johnson: ejohnson@oxfordeconomics.com

Oxford Economics
4 Millbank,
London
SW1P 3JA, UK

Tel: +44 203 910 8000

Cover Photo Credits

Top left: AB InBev
Top middle: Mint Images Limited/Alamy Stock Photo
Top right: Greatstock/Alamy Stock Photo
Bottom left: Vladimir Tretyakov/Shutterstock.com
Bottom middle: Pexels.com
Bottom right: Pexels.com





OXFORD
ECONOMICS

Global headquarters

Oxford Economics Ltd
Abbey House
121 St Aldates
Oxford, OX1 1HB
UK
Tel: +44 (0)1865 268900

London

4 Millbank
London, SW1P 3JA
UK
Tel: +44 (0)203 910 8000

Frankfurt

Marienstr. 15
60329 Frankfurt am Main
Germany
Tel: +49 69 96 758 658

New York

5 Hanover Square, 8th Floor
New York, NY 10004
USA
Tel: +1 (646) 786 1879

Singapore

6 Battery Road
#38-05
Singapore 049909
Tel: +65 6850 0110

**Europe, Middle East
and Africa**

Oxford
London
Belfast
Dublin
Frankfurt
Paris
Milan
Stockholm
Cape Town
Dubai

Americas

New York
Philadelphia
Boston
Chicago
Los Angeles
Toronto
Mexico City

Asia Pacific

Singapore
Hong Kong
Tokyo
Sydney
Melbourne

Email:

mailbox@oxfordeconomics.com

Website:

www.oxfordeconomics.com

Further contact details:

[www.oxfordeconomics.com/
about-us/worldwide-offices](http://www.oxfordeconomics.com/about-us/worldwide-offices)