OXFORD ECONOMICS

acem The Motorcycle Industry In Europe



THE ECONOMIC IMPORTANCE OF MOTORCYCLES TO EUROPE

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Note: Many of the photographs used in this report were taken prior to the onset of the Covid 19 pandemic. They are therefore compliant with the health and safety regulations that applied at the time.

FOREWORD

This last year has been an extremely challenging time for the motorcycle industry and its customers as well as for our society and economy as a whole. I am delighted therefore to present this report on the role that the motorcycle sector played within the overall European economy before the onset of the Covid-19 pandemic. My expectation is that it may help the general public, stakeholders, and policy makers to better understand the valuable contribution of the motorcycle industry in Europe.

Oxford Economics' research demonstrates that the economic footprint of the motorcycle sector in Europe is substantial and widespread. The largest members of our industry, directly represented within ACEM, currently operate 21 manufacturing sites and 22 specialised R&D facilities across the continent. In 2019, our companies contributed €15.9 billion to the EU and UK's GDP, with every €1 of GDP created directly by the motorcycle industry supporting a further €1.80 of GDP in other industries, through knock-on effects. Total motorcycle-related activity including events and accessories supported €21.4 billion of GDP across Europe.

Also in 2019, our sector accounted for about 389,000 jobs, and generated revenue for tax authorities of about €16.6 billion. Total motorcycle exports to countries outside the EU and UK reached about €1.6 billion in value—and could be even higher if policy makers were to take decisive action to address high customs duties that European exporters face in many key overseas markets.

But economic metrics, whilst important, do not tell the full story. The benefits of motorcycling also have a societal dimension. The wider benefits of motorcycle use in terms of time saved and reductions in emissions have



become even more obvious in the wake of the impact of the coronavirus pandemic. The 40 million two-wheelers in use on Europe's roads provide people not only with an excellent option for urban mobility, but also for recreational riding and logistic operations. Our vehicles also compare favourably to other vehicles in terms of overall environmental footprint and CO2 emissions, and the motorcycle sector wishes to continue working on dynamic products, advanced powertrains, and innovative technologies.

As this study shows, the motorcycle sector makes a valuable economic and societal contribution to Europe. As an industry we are determined to continue to play a positive role in the years to come.



Stefan Pierer
President of ACEM, the European Association of Motorcycle Manufacturers

CEO of KTM AG



EXECUTIVE SUMMARY

“A value-for-money, time-saving, enjoyable, and low-polluting travel option, also used in sports events and for important courier work.”

Across Europe, almost 40 million motorcycles and mopeds are in use, offering their riders a value-for-money, time-saving, enjoyable, and low-polluting travel option. The vehicles are also used for sport and entertainment, benefiting participants and spectators, and by couriers for a range of important tasks.

Their use further supports a wide range of productive activity, due to the need for maintenance, fuel, spare parts, special clothing, safety gear, insurance, and much more. The desire for new vehicles resulted in 1.4 million motorcycles and mopeds being registered in Europe in 2019, with one million new units manufactured across the continent in that year.

This report, commissioned by ACEM and prepared by Oxford Economics, examines the economic importance of motorcycles, mopeds, and allied vehicles (‘L-category vehicles’) to the EU-27 and UK in 2019—the latest year for which robust data are available at the detailed level required, and the latest year of ‘normal’ economic activity, unaffected by the Covid-19 pandemic.



THE IMPACT OF MOTORCYCLES ON THE EUROPEAN ECONOMY

In 2019, motorcycle-related activity supported €21.4 billion of output (GDP) across Europe, associated with 389,000 jobs and €16.6 billion of tax revenues. Economic activities supported one way or another by motorcycling therefore generated more GDP, and employed more people, than the metropolitan area economies centred on Venice, Malaga, and Palma de Mallorca, as well as the entire economy of Iceland. The total tax impact would have been sufficient to cover the pay of 380,000 teachers, or some 6.5% of all European teachers.

Of the GDP contribution, €15.9 billion related to the manufacture, sale and repair of motorcycles and parts, €2.1 billion to sports and promotional events, and €3.4 billion to the provision of motorcyclists' accessories. Four-fifths of the total was accounted for by six countries, namely Italy (23%), Germany (20%), France (13%), the UK (11%), Spain (7%), and Austria (7%).

As well as the activity of the manufacturers, distributors, repairers, and event organisers themselves, known as the 'direct' impacts, these 'total contributions' also include activity supported by supply chain transactions ('indirect' impacts), and by the spending of relevant workers and event attenders ('induced' and 'tourism' effects). Here, we find that every €1 of GDP created directly by these businesses supports a further €1.80 of GDP in other industries, due to the various 'knock-on' expenditure impacts.

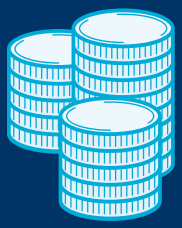
Direct economic impact of motorcycle manufacturing and trading

For the purposes of this study, the 'motorcycle manufacturing industry' includes all activity undertaken in Europe by the major global motorcycle manufacturing brands—including trading, design, and headquarters operations, as well as factory production. These companies account for the majority of the industry's sales, production, and employment in Europe, and 17 of them are members of ACEM, between them operating 21 factories, 22 R&D centres, and 15 head and European offices in the EU-27 and UK.

In 2019, the motorcycle manufacturing industry directly added €2.3 billion to European GDP. A relatively modest 25,000 workers were engaged to produce this output, as the industry's labour productivity was a substantial €92,000, in terms of GDP per job, compared with the European economy-wide average of around €55,000.

€21.4 billion

Total European GDP supported by motorcycle-related activity, taking direct and knock-on expenditure impacts into account.



389,000

Number of jobs supported in one way or another by motorcycle-related activity.



€92,000

Direct GDP per job in the high-productivity motorcycle manufacturing sector.



The 'motorcycle manufacturing and trading sector', is defined more widely, to also include the activities of independent motorcycle wholesalers and retailers, and garages offering motorcycle repair and maintenance. In stark contrast to the motorcycle manufacturing industry, the independent motorcycle sale and repair industry is made up of a very large number of typically very small businesses, and their work is of a much more labour-intensive nature.

133,000

Number of individuals working directly for motorcycle manufacturing, distribution, and repair businesses in Europe.



As a result, the motorcycle manufacturing and trading sector as a whole directly provided 133,000 European jobs. This was associated with €5.8 billion of GDP. The tax revenues generated amounted to €5.0 billion, including VAT paid by European residents, and taxes paid by businesses and workers.

Total economic impact of motorcycle manufacturing and trading

But the contribution of motorcycle manufacturers and traders to the European economy does not end there. The sector's purchases of supplies of raw materials, goods, energy, and services supported €5.6 billion of indirect GDP, and 89,000 indirect jobs, in the European portion of its global supply chain.

Taking activity 'induced' by the wage-funded spending of sector and supply chain workers too, total annual European GDP supported by the motorcycle manufacturers and traders can be put at €15.9 billion, associated with 291,000 jobs. The total annual tax contribution is some €13.5 billion.

Economic impact of other motorcycle-related activities

Additional economic activity is generated by firms that sell accessories directly to motorcyclists, and at motorcycle sporting and promotional events. It is estimated:

- The total GDP impact of the manufacture and sale of motorcyclists' accessories (such as helmets, clothing, and boots) is put at €3.4 billion, associated with 60,000 jobs and €1.2 billion in taxes.
- That of sports and promotional events—including 'tourism impacts' benefiting local campsites and restaurants, etc—works out at €2.1 billion, supporting 38,000 jobs and €1.2 billion in tax.

ADDITIONAL BENEFITS FOR EUROPE'S ECONOMY AND SOCIETY

This study also examines international trade in motorcycles and parts. In 2019, European manufacturers sold €2.1 billion of these goods to non-European customers—so that exports accounted for 39% of their total sales by value.

Even so, European countries had a trade deficit in these products, with imports totalling €4.5 billion. Large quantities are imported from Asian countries where European manufacturers face high import tariffs. These high custom duties protect their domestic markets by making European vehicles relatively more expensive.

Finally, the study analyses the additional benefits offered by motorcycles to their users, and to the environment. They offer time savings to users. Our scenario analysis suggests if 5% of those who commute by car across Europe (5.3 million commuters) switched to motorcycles, the aggregate time savings would be 21.2 million days per annum—worth €3.3 billion to these users. Motorcycles offer cost savings due to lower fuel use and operating costs. Commuting by motorcycle (€545) costs nearly one-third of what it costs to use a car (€1,435) across a year.

The motorcycles also have a smaller environmental footprint. Their greenhouse gas emissions were worth €62 per annum for an average commuter in Europe, compared to €114 for a car.

€2.1 billion

European exports of L-category vehicles, parts, and accessories in 2019.



THE ECONOMIC IMPORTANCE OF MOTORCYCLES TO EUROPE

€21.4 billion*

Total European GDP supported by motorcycle-related activity.

*Includes direct and knock-on expenditure impacts

389,000

Total jobs supported by the motorcycle industry across Europe.

€16.6 billion yearly contribution to governmental revenue through taxes paid.

2.8 GDP multiplier of the motorcycle sector.



For every **€1** of GDP generated by the sector itself, a further **€1.80** is supported in other industries.

39 million motorcycles available for use - **11%** of the total EU+UK motorized fleet.

5 million Europeans commute to work everyday by motorcycle.

1.4 million new motorcycles registered in 2019.

99 g/km: average CO_2 emissions of a two-wheeler on the streets – less than half of the 210 g/km emitted by the average car (petrol and diesel).

64 g/km: average CO_2 emissions of motorcycles up to 250 cc. **62%** of Europe's motorcycles fall into this category.



€2.1 billion

Annual value of motorcycles (**€1.6 billion**) and parts (**€0.5 billion**) exported to customers outside of Europe.

5 million

Spectators attending major motorcycle sporting events in 2019.

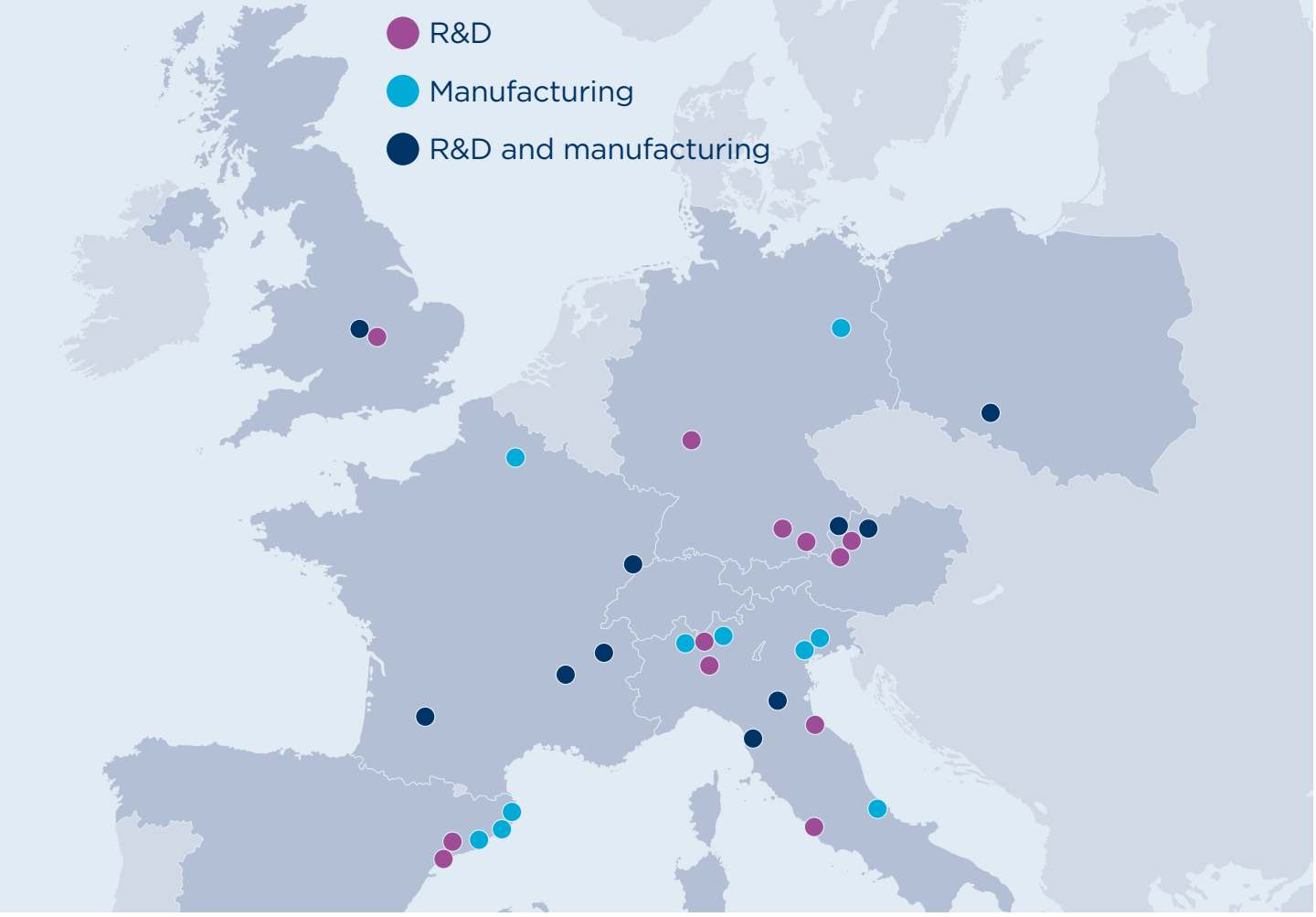


2.5 million

Individuals attending motorcycle trade fairs and manufacturers' promotional events in 2019.



Facilities operated by ACEM members



1. INTRODUCTION

This report explores the importance of motorcycles to the European economy and society. It was commissioned by ACEM, the trade association for the motorcycle industry across Europe, and prepared by the global consultancy company Oxford Economics.

More precisely, in this report, 'motorcycles' should be usually taken to include all L category vehicles (which are spelt out in the box opposite and in greater detail in Appendix 1).[1] 'Europe' is shorthand for the area covered by the 27 members of the European Union ('EU-27'), plus the UK, rather than the entire continent.

"In 2018, there were some 39 million motorcycles used in Europe, equivalent to one for every 11 adults.

The stock of two-wheelers continues to grow. In 2019 alone, 1.4 million new motorcycles were registered in the EU and UK."

1.1 THE IMPORTANCE OF MOTORCYCLES TO EUROPEAN SOCIETY

Motorcycles can offer significant money and time savings to individual riders, as well as being more enjoyable—and less polluting—than other forms of transport that are vulnerable to delays and interruptions. They are also used for sport and entertainment, to the benefit of both participants and spectators, and by couriers in a range of important activities.

In fact in 2018, there were some 39 million motorcycles available for use in Europe, equivalent to one such vehicle for every 11 adults.[2] They therefore account for 11% of the region's total stock of motorised vehicles, compared with 76% for passenger cars and 13% for lorries and coaches. Italy (24%), Germany (16%), and Spain (14%) account for just over half of the motorcycle fleet between them, but motorcycle use is also spread widely across the continent, with, for example, the highest number of motorcycles per head found in Greece (at one for every three adults) and the Czech Republic (five).

The use of motorcycles requires regular maintenance, the purchase of fuel, lubricants, spare parts, special clothing, safety gear, and insurance, and the provision of usable roads, training, rider licensing, and vehicle registration services, amongst much else. The vehicles also, of course, need to be purchased in the first place, and ultimately replaced, often with the help of financial and other services associated with those transactions. In fact in 2019, some 1.4 million new motorcycles were registered in the EU-27 and UK.

These demands support work in Europe's wholesale, retail, and other services sectors. And while imports from the rest of the world are fairly significant in the case of goods, Europe is home to an important manufacturing base, with just over one million motorcycles produced in 2019.[3] Furthermore, while the manufacture of complete motorcycles is quite concentrated geographically—with Italy typically accounting for over a third of all units produced in recent years—the manufacture of components and accessories for motorcycles and motorcyclists is more widely spread, as are the research, development and design activities undertaken in Europe by national and global manufacturers.

All of this activity in turn generates vital revenues for Europe's tax authorities.

[1] i.e. all vehicles classified to the 'L' category in the system drawn up by the United Nations Economic Commission for Europe (UNECE), and used by the EU for regulatory purposes. However, in the chapter on international trade, the distinction between 'motorcycles' and 'mopeds' is retained.

[2] Based on data from Eurostat and ACEM. 'Adults' here means aged 16 and over.

[3] Source: Eurostat PRODCOM dataset.

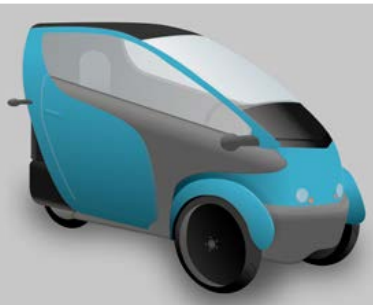
WHAT IS AN L-CATEGORY VEHICLE?

L1 <4kw



Light-two wheel powered vehicles (L1e)

L2 <4kw



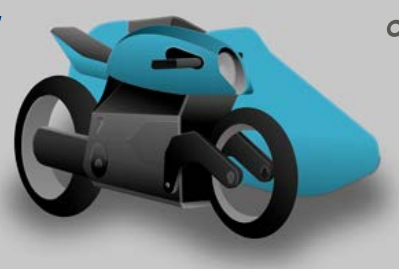
Three-wheel mopeds (L2e)

L3 ∞kw



Two-wheel motorcycles (L3e)

L4 ∞kw



Two-wheel motorcycles with side car (L4e)

L5 ∞kw



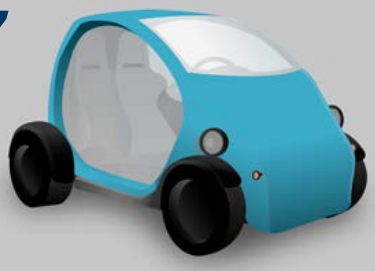
Powered tricycles (L5e)

L6 <6kw



Light quadricycles (L6e-A)

L7 <15kw



Heavy quadricycles (L7e)

1.2 STUDY COVERAGE AND REPORT STRUCTURE

In order to examine the importance of these activities in quantitative terms, Part A of this report is specifically concerned with the motorcycle manufacturing and trading sector. This covers the following activities undertaken in Europe:

- Motorcycle manufacturing. This includes research, development and design, trading activities, and headquarters and support functions.[4,5]
- The separate manufacture of engines, sidecars, and components (such as exhaust systems or braking systems) for motorcycles, and of accessories (such as saddles and mirrors) for those vehicles.[6,7]
- Other trading in motorcycles and parts for motorcycles, undertaken by independent businesses that are not part of a manufacturing group.
- Maintenance and repair of motorcycles and motorcycle parts.

But the study also examines a wider range of motorcycle-related activities, including additional operations only made possible by the production and use of motorcycles, and these are the subject of Part B of this report. These fall into three broad groups for the purposes of this analysis:

- Suppliers of goods and services targeted specifically at the motorcycle trade.
- Additional goods and services provided directly to motorcyclists, and other motorcycling enthusiasts.
- Courier services dependent on the use of motorcycles, in various business-to-business, consumer, and public services fields.

Together, parts A and B of the report cover the impact on the European economy of these motorcycle-related activities. This starts with the production value ('contribution to GDP'), employment, and tax payments of the sectors themselves, known as their 'direct' impact. It also includes activity supported in the European supply chain by the sectors' purchases of raw materials, goods, energy, and services — referred to as the 'indirect' impact. And it further encompasses the support provided to the wider economy by the wage-funded spending of workers in all of these businesses, known as the 'induced' effect.

In a standard 'economic impact assessment' such as this, the 'total impact' of an industry on an economy—also referred to as its 'total contribution' or 'economic footprint'—is the sum of these 'direct', 'indirect' and 'induced' impacts. The basic approach to this analysis is described in the box on page 15.

Part C of the report then describes some additional economic and social impacts arising from the production and use of motorcycles. This includes the contribution of motorcycles and parts to Europe's balance of international trade, and the effect of the import duties applied to that trade. The money and time savings made by individuals commuting by motorcycle, compared with the cost of equivalent travel by car, and the associated saving on carbon and other emissions that are potentially harmful for the environment, are also analysed.

Most of the numerical analysis in the report relates to the situation in calendar year 2019, the last period for which reasonably robust data are available at the detailed level required, and the latest year of 'normal' economic activity, unaffected by the Covid-19 pandemic. However, the impact of Covid on motorcycle manufacturers and traders in 2020, and the expected impact beyond that, are examined in Appendix 2.

[4] 'Trading' in this report refers to wholesale and retail activities, also referred to as 'distribution'.
[5] Support services include HR, financing, accounting, and IT services for other parts of the same global group.
[6] But not accessories for motorcyclists, such as helmets and clothing, which are examined in Part B of this report as a separate but related sector.
[7] In the detailed analysis, separately-produced engines, components, and accessories for motorcycles are referred to as 'parts', while sidecars are included in the 'manufacture of motorcycles' sub-sector.

INTRODUCING ECONOMIC IMPACT ANALYSIS

The impact on the European economy of the various motorcycle-related sectors is assessed using a standard means of analysis called an economic impact assessment. This involves quantifying the impact of three categories of expenditure undertaken by the businesses in those industries (summarised in Fig. 1):

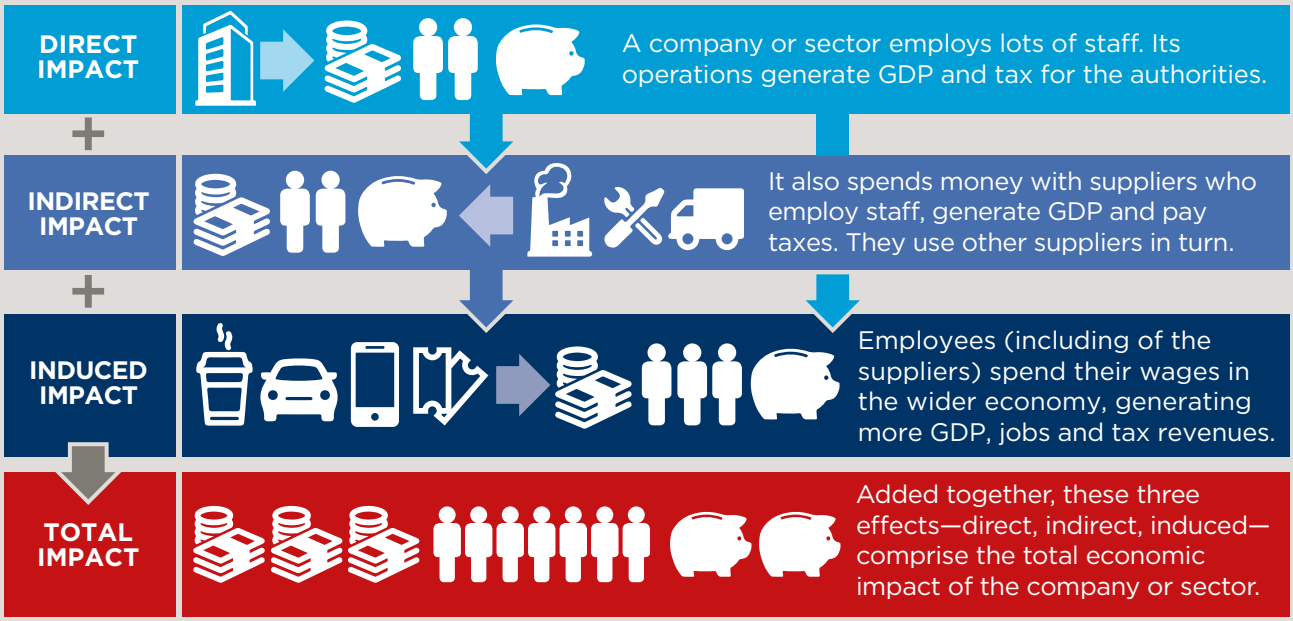
- The direct impact relates to the employment costs and capital costs borne by the firms in the course of running their activities, and the net profits generated by that work, at their sites across the EU-27 and UK.
- The indirect impact refers to the economic production stimulated along the European supply chain by the businesses' purchases of inputs of goods and services from suppliers (i.e. by their 'procurement').
- The induced impact reflects the wider economic benefits that arise in Europe due to the payment of wages by the firms, and those in their supply chain, to their staff, who spend these earnings in retail, leisure, and other outlets. It also includes the economic activity stimulated in these outlets' supply chains, and that supported by further 'rounds' of wage-funded spending by workers in the consumer-facing sectors.

The sector's total impact on the European economy is simply the sum of these three channels. The report focuses on three dimensions of that impact:

- The contribution to GDP of the businesses concerned.[8]
- Employment, measured on a headcount basis and including self-employed workers as well as employees.
- Taxes of all kinds paid to the various authorities across the EU-27 and UK.

The results are presented on a 'gross' basis, ignoring the possible value of any alternative, 'second-best' use of the resources concerned, in the absence of the industries' activities.

Fig. 1: Schematic of the contribution to an economy of a business, industry, or sector



[8] The contribution to GDP of a private sector business or industry is defined as that part of its operating revenues covering employment costs, capital costs, production taxes, and net profits, as opposed to being used to fund the purchase of supplies from other businesses or sectors. This is technically known as 'gross value added' or 'GVA'. While production taxes—such as business property taxes and payroll taxes—are included, taxes on products purchased and sold, such as VAT and excise duties, are not. The GVA measure of production therefore differs slightly to the 'headline' GDP measure, mainly used for national economies, which includes taxes on products.

Estimates of the direct impacts rely heavily on data from ACEM's members, and on statistics published by Eurostat. The wider impact modelling was then conducted using a model of the inter-related economies around the globe, including the 27 individual EU member states, the UK, and the rest of the world. The model was constructed by Oxford Economics, using data published by the OECD on the activity of different economic sectors in different countries, and the domestic and international transactions between them. Further detail about the economic impact methodology can be found in the separate Technical Report accompanying this report.

For each individual country, the indirect and induced impacts quoted reflect the GDP and employment of suppliers based in that state, and taxes paid by firms and individuals resident in that state, as a result of motorcycle-related activity anywhere in Europe. The effect of cross-border transactions is not, therefore, missed out, as it would be with some alternative, more simplistic, estimates.

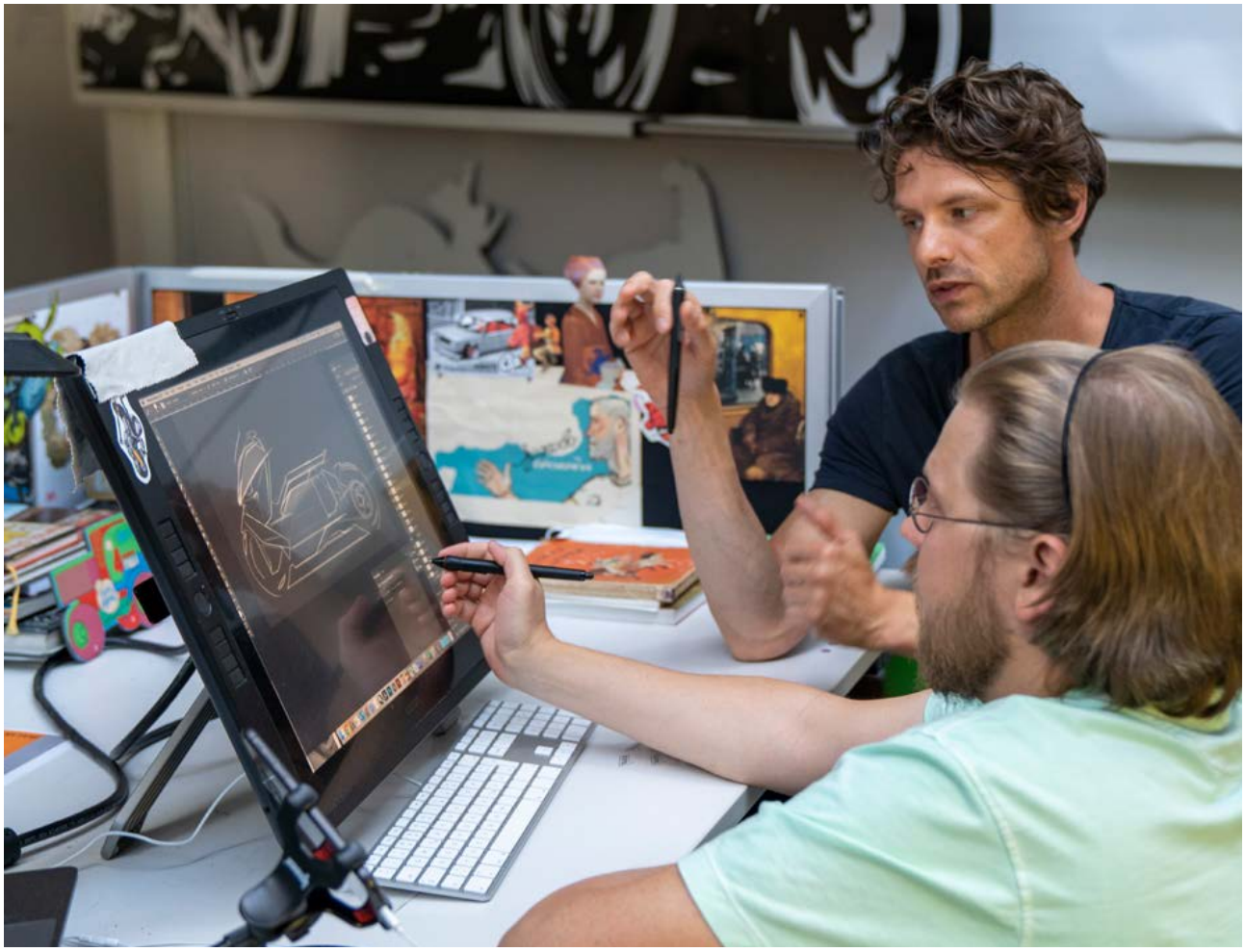
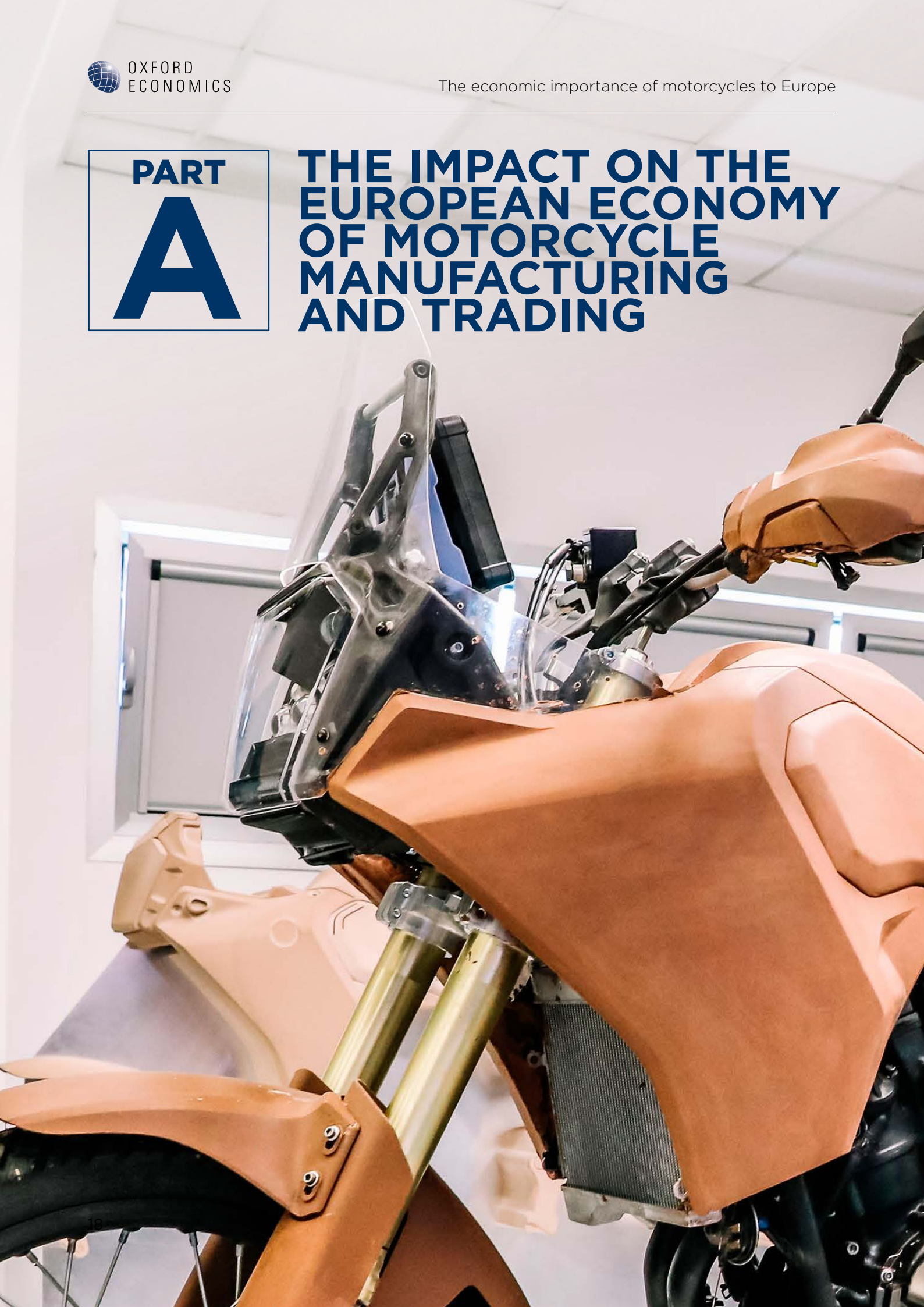


Fig. 2: Glossary of terms used in this study

Term used	Fuller meaning
Motorcycle	Any 'L-category vehicle', i.e. motorcycle, moped, motorised tricycle, motorised quadricycle, or other small motorised vehicle with similar characteristics.
Motorcycle parts	Engines, components, and accessories (e.g. saddles) for motorcycles. Also sidecars, although in the sub-sector analysis these are counted in 'motorcycles' rather than 'parts'.
Europe	The 27 European Union member states (as of 2020) plus the UK.
Motorcycle manufacturing industry	The manufacture of motorcycles and motorcycle parts, plus the motorcycle-related R&D, design, headquarters, trading, and after-sales servicing functions of local and global motorcycle manufacturing companies, if carried out in Europe.
Independent motorcycle sale and repair industry	Other wholesale and retail trading in motorcycles and parts, and maintenance and repair services for those vehicles and parts, if undertaken in Europe.
Motorcycle manufacturing and trading sector	The above two industries combined.
Accessories sector	The manufacture and distribution in Europe of helmets, clothing, boots, and other accessories for motorcyclists (but not accessories for motorcycles).
Sales/turnover	Net-of-VAT sales receipts (including the value of transactions within the sector).
Production	Sector output, excluding VAT, other taxes on sales, and the cost of trading stock sold on.
GDP	The sector's contribution to GDP, i.e. its net output, excluding taxes on sales and the cost of all bought-in goods and services. Technically known as 'gross value added' or 'GVA'.
'Headline' GDP	Net output with sales taxes added back. Mainly used for national and regional economies, but not sectors of industry.
Employment costs	Employees' wages and salaries, plus employers' pension and social security contributions. A major component of GDP. Excludes self-employed income.
Employment	Number of jobs, including self-employed jobs as well as employee jobs.
Direct impact	The GDP and employment of, and taxes paid by, the sector concerned.
Indirect impact	Activity supported in the sector's European supply chain.
Induced impact	Activity supported in Europe by the wage-funded spending of relevant workers.
Tourism impact	Activity supported in Europe by the additional spending in the local area of visitors to a sports or promotional event, e.g. on accommodation and catering.
Tax impact	Includes all taxes paid by firms and workers in the channel concerned (e.g. indirect).
Direct taxes	Also include VAT and other taxes on the sector's sales to final consumers.
Induced taxes	Also include VAT and other taxes on the workers' purchases.
Tourism taxes	Equivalent to total direct, indirect, and induced taxes supported by the provision of accommodation and catering services, etc, to the event attenders.
Enabled taxes	Road fuel duty, road user taxes, and vehicle licence fees paid by motorcyclists.
Total impact on the economy	The total impact on European GDP, jobs, and tax revenues. The sum of the direct, indirect, induced, and tourism impacts, plus enabled tax payments.
Economic impact	The impact on the economy as described above, but also further effects including benefits to motorcycle users, and impacts on the balance of international trade.
Social impact	Any other cost or benefit not counted as 'economic'. Includes environmental effects.

PART A

THE IMPACT ON THE EUROPEAN ECONOMY OF MOTORCYCLE MANUFACTURING AND TRADING



KEY POINTS

- The motorcycle manufacturing and trading sector directly contributed €5.8 billion to European GDP in 2019, associated with 133,000 jobs. It therefore employed more people across the EU-27 and UK, and produced more GDP, than computer equipment manufacturers, manufacturers of consumer electronics, and the light metal casting industry. It is also larger on both of those counts than the toy and games manufacturing sector, sports goods manufacturing sector, and bicycle manufacturing industry.
- The sector's direct contribution to European tax revenues—the sum of VAT on sales of goods and services to final consumers, and taxes and social security contributions paid by businesses and workers in the sector—was €5.0 billion in that year. That would have been sufficient to fund the pay of 110,000 teachers, or 2% of all European schoolteachers.
- Taking into account indirect (supply chain) and induced (wage-funded expenditure) impacts too, the total GDP contribution of the sector works out at €15.9 billion. This means that, for every €1 of GDP generated by the sector itself, a further €1.80 is supported in other industries.
- This activity supported 291,000 jobs in 2019, in European production and services industries of all kinds. Tax revenues generated by these activities, and by motorcyclists' payments of fuel and vehicle duties, totalled €13.5 billion in that year.

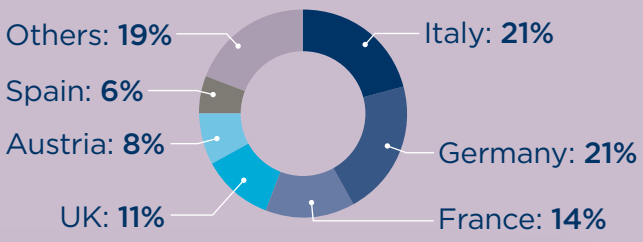


ECONOMIC IMPACT OF MOTORCYCLE MANUFACTURING AND TRADING

€15.9 billion*
Total European GDP supported by motorcycle manufacturing and trading.
*Includes direct and knock-on expenditure impacts

291,000
Total jobs supported by motorcycle manufacturing and trading across Europe.

Europe-wide GDP impact by country



€13.5 billion
Yearly tax contribution to governmental revenue.

2.8 GDP multiplier of the motorcycle sector.



For every **€1** of GDP generated by the sector itself, a further **€1.80** is supported in other industries.

€92,100 GDP per job in the **25,000**-worker motorcycle manufacturing industry is **70% higher** than the **€54,800** economy-wide average.



"Motorcycle manufacturers and traders **employ more people**, and **produce more GDP**, than computer equipment manufacturers, manufacturers of consumer electronics, and the light metal casting industry."


PEUGEOT

2. THE SIZE AND STRUCTURE OF THE MOTORCYCLE MANUFACTURING AND TRADING SECTOR

This chapter describes the pattern of economic activity undertaken by the motorcycle manufacturing and trading sector, including the sector's direct contribution to European GDP, employment, and tax revenues.

"Europe is home to world-leading motorcycle companies and has attracted investments from several foreign manufacturers of two-wheelers.

Today, ACEM members operate 21 manufacturing sites and 22 R&D centres across the EU-27 and UK."

2.1 MOTORCYCLE MANUFACTURING AND TRADING ACTIVITIES

As set out in the introduction, this sector covers the manufacture, distribution and repair of motorcycles, mopeds, other 'L-category' vehicles, and parts for those vehicles, together with related R&D, design, and support functions.

Within this broad sector, the motorcycle manufacturing industry includes the European-based, motorcycle-related activities of national and multinational businesses whose main activity globally is to manufacture motorcycles, or a range of motor vehicles including motorcycles. This includes European, Japanese, American, and other companies in terms of corporate nationality.

Some of these companies manufacture motorcycles and/or motorcycle engines, and/or conduct research, development, and design activities, in Europe. In other cases, the companies' European operations are mainly confined to distribution, and associated headquarters functions, with the motorcycles manufactured outside of Europe and imported.

For the purposes of this report, all of the European-based manufacturing, research, design, distribution, and support functions of these businesses are counted in the motorcycle manufacturing industry, as long as they ultimately relate to motorcycles rather than other vehicles—whether or not the subsidiaries concerned are allocated to that industry in the official classification used in national and EU business statistics.

These motorcycle manufacturing companies account for the majority of the industry's sales values, production values, and employment in Europe, and the larger companies are typically ACEM members. In fact some 17 motorcycle manufacturing corporations are members of ACEM, between them operating 21 factories, 22 R&D centres, and 15 head and European offices in the EU-27 and UK.

But in addition, the motorcycle manufacturing industry includes all producers of sidecars, engines, components, and accessories, where these are specifically designed to be fitted to motorcycles. Some of these items are manufactured by specialist firms not involved in the production or assembly of complete vehicles. (Note that this category includes accessories for motorcycles such as saddles and mirrors, but not accessories for motorcyclists such as helmets.)

The independent motorcycle distribution and repair industry accounts for the remainder of the broader sector analysed here. It includes wholesalers and retailers, and garages offering motorcycle repair and maintenance, and is comprised of a very large number of mainly small businesses.

In fact based on the official classification of businesses by industry, in 2018 there were some 39,400 enterprises in the EU-27 and UK whose main activity was to sell, maintain, or repair motorcycles, employing an average of fewer than three individuals each (including working proprietors as well as employees). On the same basis, and by contrast, the motorcycle manufacturing industry (including parts manufacture) was comprised of around 1,040 businesses employing an average of 21 workers per firm.[9]

2.2 SALES, PRODUCTION, GDP, AND EMPLOYMENT BY SUB-SECTOR

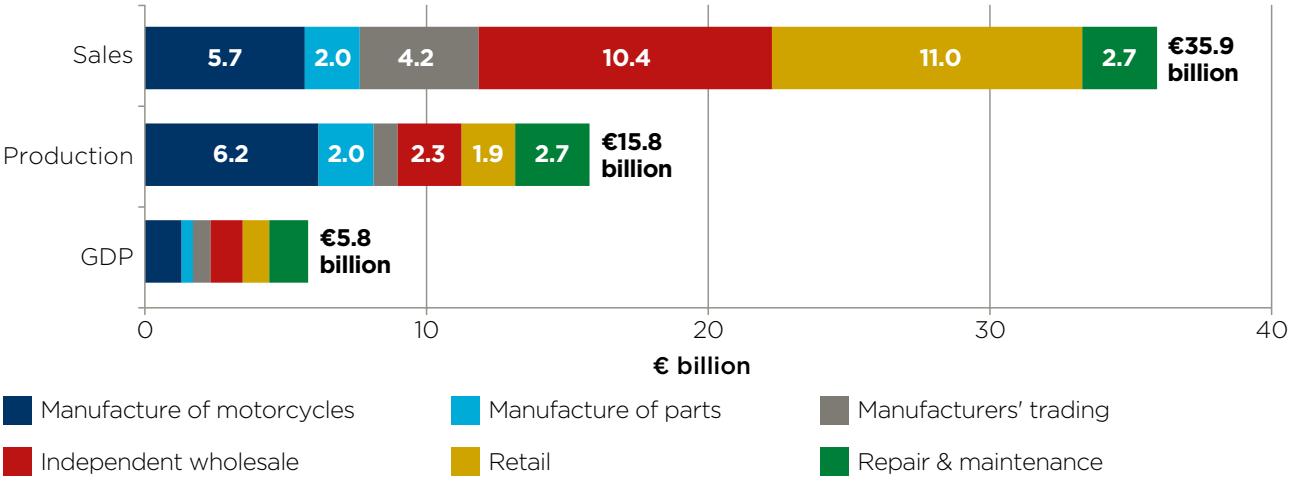
Fig. 3 illustrates the total sales, production value, and GDP contribution of motorcycle manufacturers, distributors, and repairers in 2019, across the EU-27 and UK, by sub-sector.[10] The values shown are Oxford Economics' estimates, taking into account a survey of ACEM's manufacturing members, and official data collated and published by Eurostat (as detailed in the Technical Report).

2.2.1 Sales and production by sub-sector

The total turnover or sales of motorcycle manufacturers and traders is estimated to have been €35.9 billion in 2019, with this value dominated by the wholesale and retail part of the sector. Across the manufacturing industry, including manufacture of both motorcycles and parts, and the European trading operations of firms whose primary activity (globally) is to manufacture motorcycles, turnover totalled €11.9 billion.

The total value of production associated with these sales is put at €15.8 billion in 2019. Here, the pattern by sub-sector is very different to that of turnover, with the share of non-trading activities much higher.

Fig. 3: Sales, production, and contribution to GDP by sub-sector in 2019



Source: ACEM members; Eurostat; Oxford Economics

[9] Source: Eurostat structural business statistics database. The workers per firm figure for manufacturers is for 2017. In this official classification, manufacturing subsidiaries focused on distribution are included in the 'sale, maintenance and repair' industry. Those focused mainly on R&D, design or headquarters functions are also excluded from 'manufacturing'. Each national operation of a multinational group is counted separately.

[10] The 'manufacturing' and 'independent distribution and repair' industries are each split into three sub-sectors, as shown in the chart and described in the Technical Report. Here, manufacturers' R&D and design activities are split between 'motorcycles' and 'parts', and their HQ and support functions between 'motorcycles', 'parts' and 'trading', depending on the final consumer-facing activity to which that work is related. Sidecars are included with 'motorcycles', while the 'parts' sub-sector includes engines, components, and accessories to fit to motorcycles.

For most types of economic activity, production and turnover are broadly equal, and this is the case for manufacturers of motorcycle parts, and motorcycle repair and maintenance businesses. For manufacturers of motorcycles, production is marginally higher than sales, reflecting unsold production. While this can simply reflect net additions to stocks of finished products, or work in progress, two further types of production are relevant here: R&D work adding to the value of the company's intellectual property and 'capitalised' in the business's accounts, and manufacture of motorcycles for the firm's own use.

By contrast, for the manufacturers' trading arms, and independent wholesalers and retailers, production is significantly less than turnover. This is because the cost of stocks of goods purchased for resale is excluded, and 'production' is defined in this case to be equal to the 'gross margin' on trade in those items.[11]

"The motorcycle manufacturing and trading sector directly contributed €5.8 billion to European GDP and supported about 133,000 jobs in 2019."

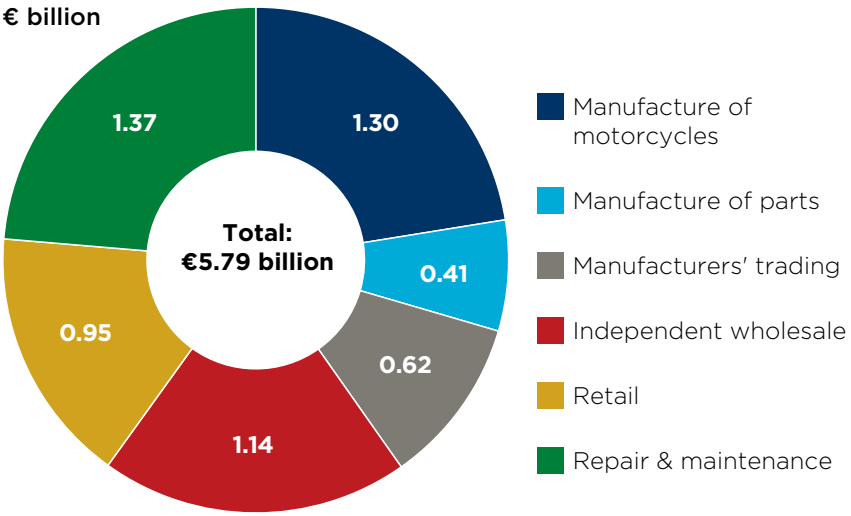
2.2.2 Direct GDP and employment by sub-sector

The businesses' direct contribution to GDP is measured as the difference between the firms' production and their purchases from third party enterprises of inputs into production process. (These inputs can include raw materials, components, other goods such as tools and workwear, energy supplies, and services of all kinds, but not items of stock for resale.)

This is estimated to have been €5.8 billion in total, in 2019, with the share of independent sale and repair activities (€3.5 billion) greater than that of manufacturing (€2.3 billion) in this case (see Fig. 4). This reflects the high share of motorcycle manufacturers' production accounted for by purchases of inputs, including purchases by manufacturers of motorcycles from suppliers of engines, exhaust systems, wheels, saddles, and other parts and components.[12] By contrast, wholesale and retail activities are more dependent on the directly-employed workforce, the cost of which is typically the single most important part of a firm's contribution to GDP.

The pattern of employment differs further (see Fig. 5), with the independent sale and repair industry accounting for 81% of the 133,000 total headcount, at 108,000, compared with 60% of the associated contribution to GDP. By contrast, the motorcycle manufacturing industry employs a comparatively modest 25,000 individuals in order to generate its €2.3 billion GDP contribution.

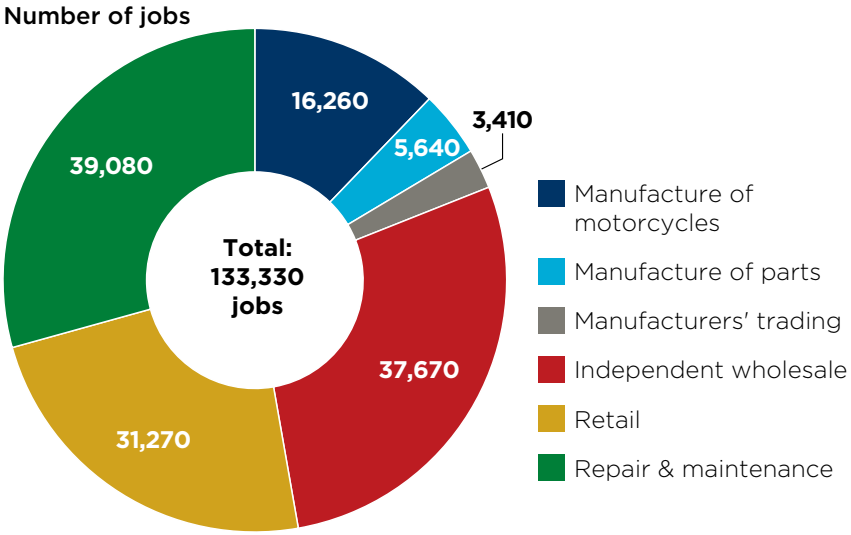
Fig. 4: Direct contribution to GDP in 2019, by sub-sector



Source: Oxford Economics

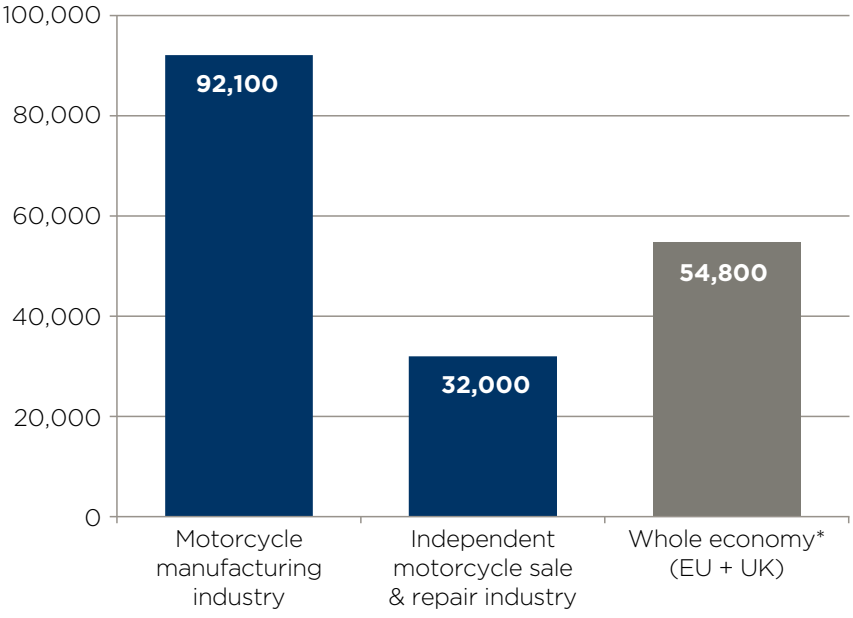
[11] The 'gross margin' can be thought of as the profit on the resale of motorcycles and parts, but before accounting for any of the other costs of running the business, such as employment costs or overheads.
[12] Manufacturers of parts such as these, specifically designed to be fitted to motorcycles, are also counted in the 'motorcycle manufacturing industry' in this report (in the 'parts' sub-sector).

Fig. 5: Average number of jobs in 2019, by sub-sector



Source: Oxford Economics

Fig. 6: GDP per job in context



Source: Oxford Economics

*Excluding rent and other real estate activity

This reflects the fact that the monetary value of GDP per job—a crude measure of productivity—is well above the equivalent economy-wide average in the motorcycle manufacturing industry, but somewhat below the average for the independent motorcycle sale and repair industry (as is the case for sales activity, and especially retail activity, more generally). This is shown in Fig. 6.

For motorcycle manufacturers, this above-average productivity reflects the high level of skills involved, as well as the capital-intensive nature their European manufacturing operations, and the large-scale (and therefore efficient) nature of their European trading operations.

"The motorcycle industry's labour productivity was a substantial €92,000, in terms of GDP per job, compared with the European economy-wide average of around €55,000."

2.3 DIRECT GDP AND EMPLOYMENT IN CONTEXT

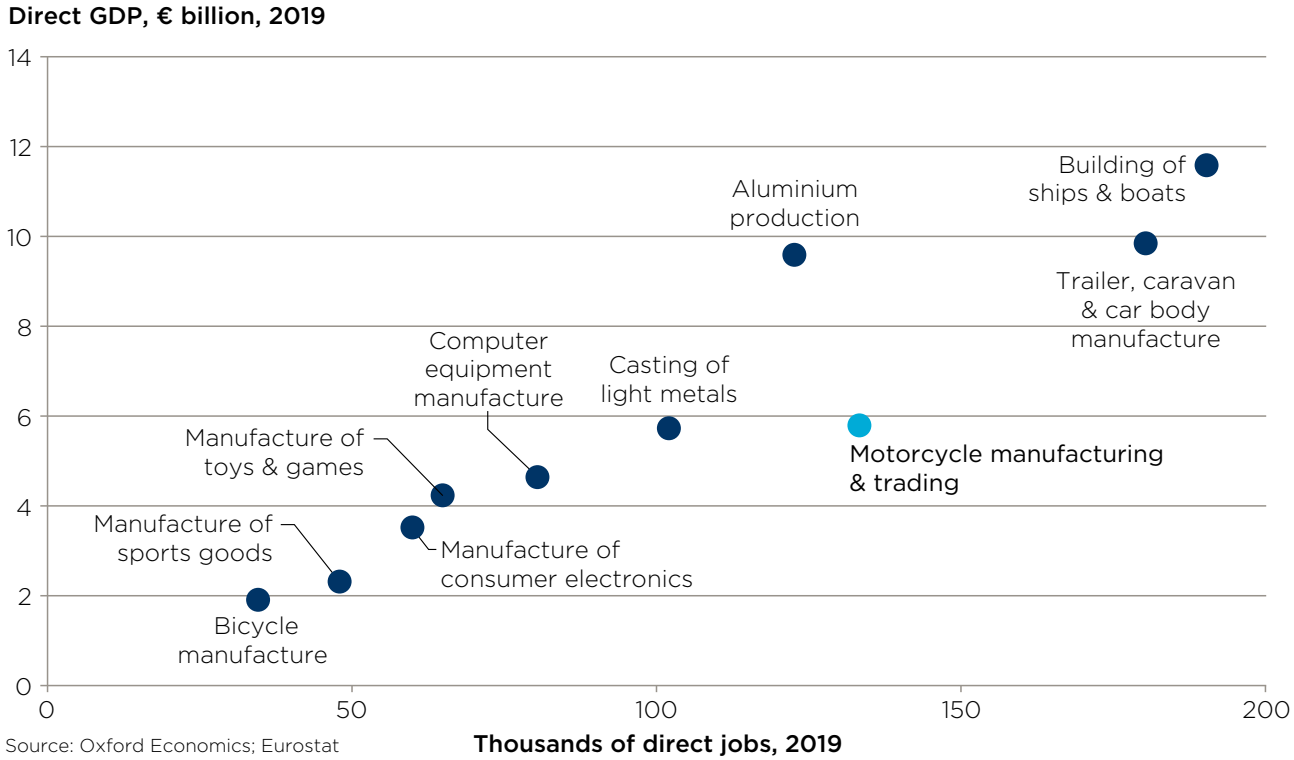
As a share of the wider motor vehicle manufacturing and distribution sector, motorcycle-related production and trading can appear to be fairly modest. More precisely, motorcycle manufacturing accounts for broadly 0.7% of all motor vehicle manufacturing GDP, and for 0.8% of all motor vehicle manufacturing jobs, across the EU-27 and UK.[13]

"Activity in the motorcycle manufacturing industry is heavily concentrated in three countries: Italy (33% of the motorcycle industry's contribution to GDP), Austria (21%), and Germany (20%)."

At the same time, motorcycle distribution and repair accounts for some 2.1% of all motor vehicle trading and repair GDP, and for broadly 2.6% of jobs in that wider sector.[14]

Even so, the size of the European motorcycle manufacturing and trading sector compares well with a range of other industries. In particular, the sector employs more people, and produces more GDP, than computer equipment manufacturers, manufacturers of consumer electronics, and the light metal casting industry, across the same geographic area (i.e. the EU-27 plus UK) (see Fig. 7). It is also larger on both of those counts than the toy and games manufacturing sector, sports goods manufacturing sector, and bicycle manufacturing industry.

Fig. 7: European motorcycle manufacturing and trading activity in context



Source: Oxford Economics; Eurostat

[13] This comparison uses the Eurostat manufacturing dataset, excluding trading, R&D and HQ subsidiaries. The reference to 'all motor vehicle manufacturing' covers cars, vans, lorries, buses, motorcycles, and vehicle parts.

[14] Distribution and repair activity here includes the work of vehicle manufacturers' trading subsidiaries, as well as independents, with the 'all vehicle' total again relating to cars, vans, lorries, buses, and motorcycles, plus parts.

2.4 DIRECT GDP AND EMPLOYMENT BY COUNTRY

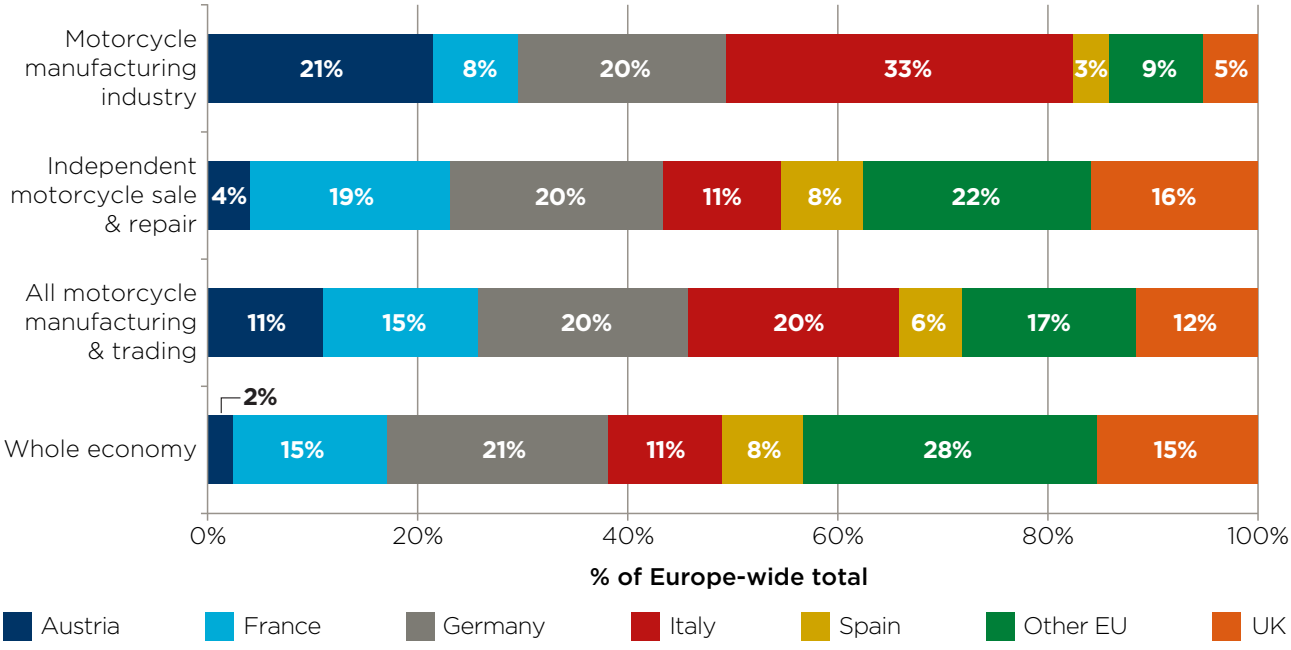
Separate results are estimated for Austria, France, Germany, Italy, Spain, and the UK. The general pattern of GDP by country for the independent motorcycle sale and repair industry is similar to that of GDP for the economy as a whole (see Fig. 8). The exceptions here are France (19% of Europe-wide industry GDP versus 15% of Europe-wide total GDP), and Austria (4% versus 2%).

By contrast, activity in the motorcycle manufacturing industry is heavily concentrated in three countries, with some 33% of the industry's European GDP occurring in Italy alone, compared with that country's 11% share of total European GDP. Austria accounts for 21% of Europe's motorcycle manufacturing GDP (versus 2% of Europe's economy-wide GDP). And 20% of the sector's value added work is undertaken in Germany, although that is marginally less than that state's 21% share of total European GDP.

Taking all motorcycle manufacturing, distribution, and repair activities together, Italy accounts for 20% of European sector GDP, Germany for 20%, France for 15%, the UK for 12%, Austria for 11%, and Spain for 6%.

"The direct tax contribution of the motorcycle sector in 2019 reached almost €5.0 billion, which is sufficient to to cover the average annual pay of broadly 110,000 teachers—some 2% of all European schoolteachers."

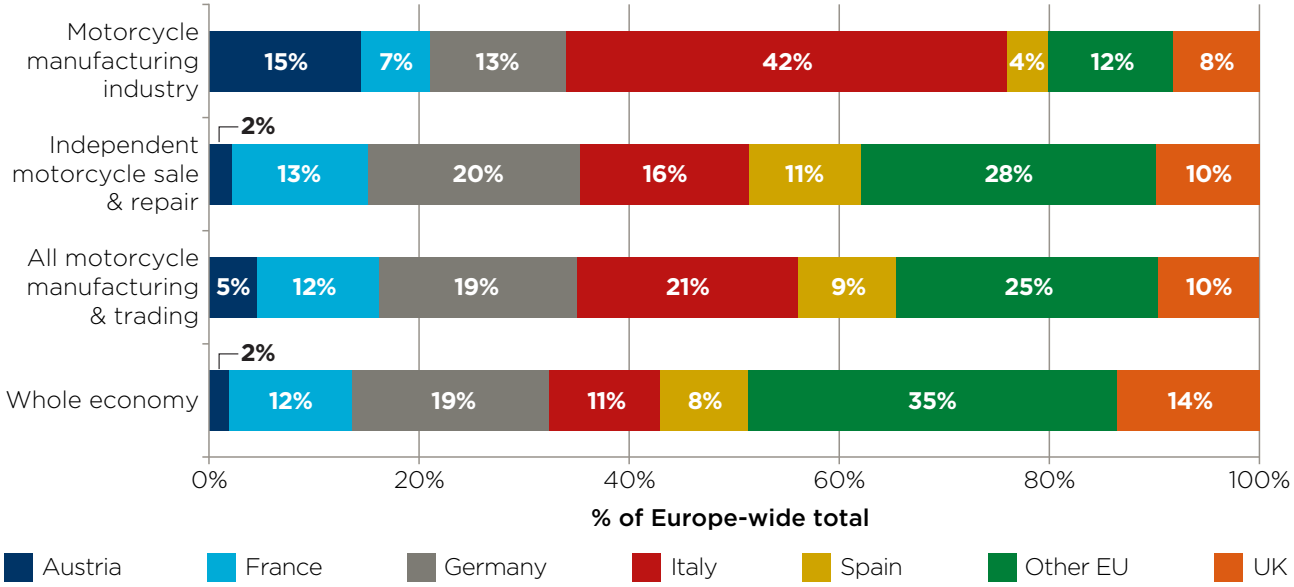
Fig. 8: Motorcycle sector GDP, and economy-wide GDP, by country



Source: Oxford Economics

Turning to direct employment, across the entire motorcycle manufacturing and trading sector, 21% of jobs are located in Italy, 19% in Germany, 12% in France, 10% in the UK, 9% in Spain, and 5% in Austria (see Fig. 9). In the motorcycle manufacturing industry, 42% of European jobs are based in Italy, and 15% in Austria. That compares with those countries' 11% and 2% shares, respectively, of all European jobs. In the independent motorcycle sale and repair industry, the most important countries of employment are Germany (accounting for 20% of the total), Italy (16%), and France (13%).

Fig. 9: Motorcycle sector jobs, and economy-wide jobs, by country



Source: Oxford Economics

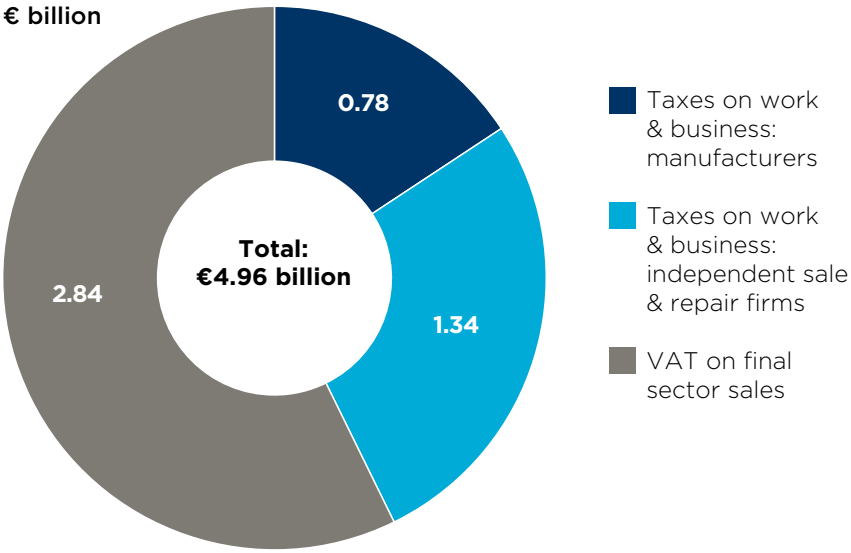
2.5 DIRECT CONTRIBUTION TO TAX REVENUES

The direct tax contribution of motorcycle manufacturers and traders, in this study, comprises taxes on work and business paid by firms and workers in the sector, and VAT paid by final EU resident customers on motorcycles, motorcycle parts, and motorcycle maintenance and repair services. Other taxes paid by motorcyclists, such fuel duties, licence fees, and road user taxes—which we term 'enabled' taxes—are not counted here, but are included in the wider tax 'footprint' explored in Chapter 3.

Taxes on work and business include income tax and social security contributions paid by employees, employers and the self-employed, taxes on corporate profits, and taxes on business use of resources—such as property taxes, vehicle licences, payroll taxes, 'green' levies, and unrefunded taxes built in to the cost of business supplies (such as excise duty on fuel).

On this basis, the total direct tax impact of the motorcycle manufacturing and trading sector in 2019 was some €5.0 billion (see Fig. 10). The majority, around €2.8 billion, was accounted for by VAT on motorcycles, parts, maintenance, and repairs. Payments by firms and workers in the motorcycle manufacturing industry amounted to around €0.8 billion, and payments by those in the independent motorcycle sale and repair industry, to some €1.3 billion.

Fig. 10: Direct tax impact by sector of taxpayer and type of tax in 2019

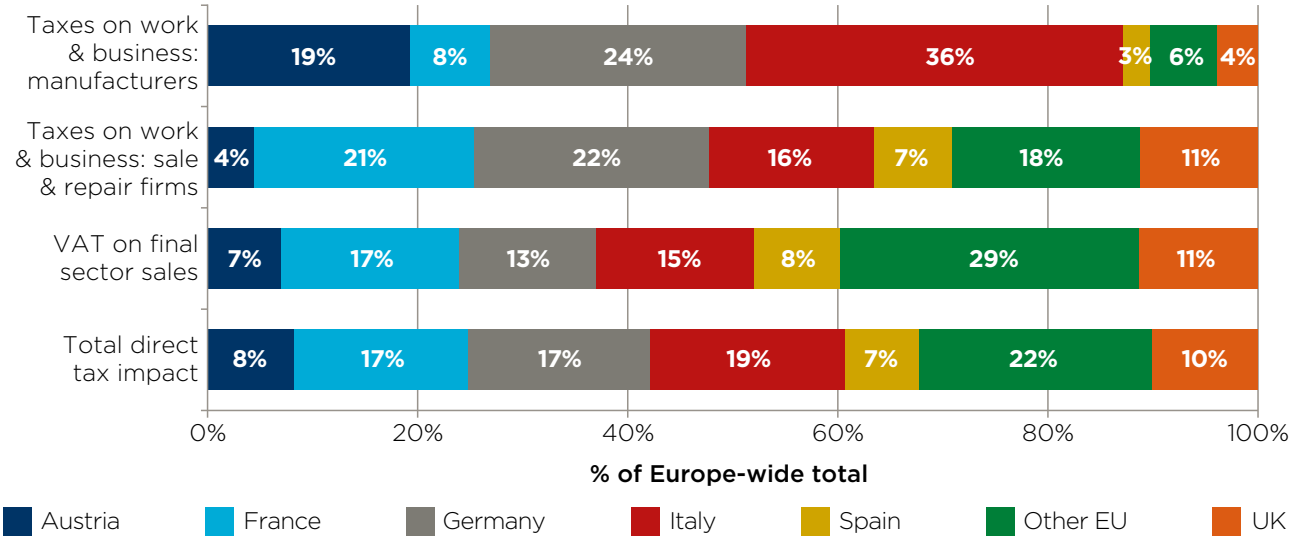


Source: Oxford Economics

By country, 19% of this direct tax take is accounted for by taxpayers in Italy, with Germany and France each accounting for 17% (see Fig. 11). These figures are heavily influenced by VAT, and taxes on activity in the independent sale and repair industry, which are spread fairly widely across the continent.[15] By contrast, tax payments by businesses and employees in the motorcycle manufacturing industry are more concentrated by location, with Italy accounting for 36% of such taxes, Germany for 24%, and Austria for 19%.

To put this in context, the total direct tax take across the 28 countries would have been sufficient to cover the average annual pay of broadly 110,000 teachers—some 2% of all European schoolteachers—taking into account the geographical pattern of both those revenues and average teachers' pay.[16]

Fig. 11: Direct tax impact by country of taxpayer in 2019



Source: Oxford Economics

[15] For these purposes, VAT receipts are allocated to the country of residence of the final consumer.
[16] Oxford Economics estimates based on detailed earnings and employment data from Eurostat.


HARLEY-DAVIDSON
Bikes, Parts, Accessoires, Motorclothes
HARLEY-DAVIDSON
HARLEY-DAVIDSO
Service Annahme


REBEL 84
CAFE - BAR
Rebel84 „ALL-Biker“ Boutique
Cafe | Bar
HARLEY-DAVIDSON

3. THE 'ECONOMIC FOOTPRINT' OF MOTORCYCLE MANUFACTURING AND TRADING

The total contribution of the motorcycle manufacturing and trading sector to the European economy—its wider 'economic footprint'—is the sum of three channels of impact: the direct (analysed in Chapter 2), indirect, and induced.

"For every €1 of value-added created in the motorcycle manufacturing, sale, and repair sector, a further €1.80 worth of work is supported in other parts of the European economy. In other words, the "GDP multiplier" of the sector is 2.8."

The indirect impact measures activity stimulated in the European supply chain by the motorcycle businesses' purchases from other companies, outside of the motorcycle sector. This includes, for example, the effect of payments by manufacturers of motorcycles and parts, to suppliers of materials and generic components—such as steel, rubber, paint, screws, and light bulbs—as well as providers of tools, workwear, and other items. This supports activity not just in other manufacturing enterprises, but also in the associated wholesale and freight transport sectors, and in the wide range of firms supplying those businesses in turn.

The indirect effect also reflects payments to third party businesses in relation to the motorcycle manufacturers and traders' running costs. This includes the cost of electricity and water, property rental and upkeep, telecommunications and IT services, and legal and accountancy services, amongst much more.

The induced impact, meanwhile, reflects the payment of wages to staff by motorcycle businesses and the firms in their supply chain, which are then spent in the wider consumer economy. It therefore reflects activity in, for example, retail outlets, food processing firms, and their agricultural suppliers, as well as in pubs, restaurants, and hotels, to the extent that this work is ultimately funded by motorcycle manufacturers and traders' spending on wages and supplies.

In the case of taxation, taxes on work and business are paid by firms and workers in the indirect and induced channels, and the induced tax impact also takes into account taxes such as VAT and excise duties on workers' spending. The total tax impact further includes 'enabled' taxes, i.e. additional taxes paid by motorcyclists, not already captured in the sector's direct tax contribution.

3.1 OVERVIEW OF THE TOTAL ECONOMIC IMPACT

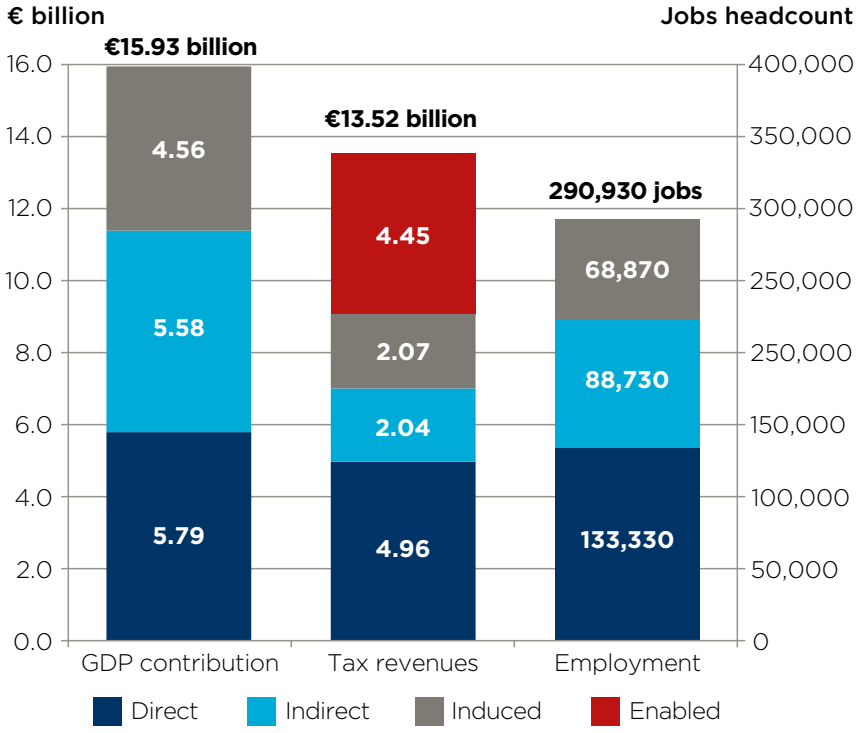
We estimate that, in 2019, the sector's total contribution to European GDP amounted to €15.9 billion. The direct contribution of the motorcycle manufacturing and trading sector itself, at €5.8 billion, accounted for 36% of this total. In addition, its procurement stimulated €5.6 billion of indirect GDP in the European part of its global supply chain (or 35% of the total), while its wage payments help to support another €4.6 billion in the induced channel (or 29% of the total) (see Fig. 12).

This means that, for every €1 of value-added created in the motorcycle manufacturing, sale and repair sector, a further €1.80 worth of work is supported in other parts of the European economy, as a result of supply chain linkages and wage-funded staff spending. In other words, as the total GDP impact is 2.8 times the direct GDP impact alone, the "GDP multiplier" is 2.8.

Some 133,300 of these jobs are in the industry itself, with 88,700 indirect jobs along the supply chain, and 68,900 induced jobs due to wage-funded consumption impacts. The total employment contribution is therefore 2.2 times the direct jobs impact alone. The "jobs multiplier" is therefore 2.2, with every five jobs in the motorcycle manufacturing and trading sector supporting six roles elsewhere in the European labour market.

The total tax impact, meanwhile, is estimated at around €13.5 billion, with this including the direct tax impact of €5.0 billion discussed in Section 2.5, indirect and induced contributions of €2.0 billion and €2.1 billion respectively, and €4.4 billion of other, 'enabled' tax payments on the part of motorcyclists.

Fig. 12: Total economic impact in 2019



Source: Oxford Economics

"The yearly GDP impact of the motorcycle sector is about €15.9 billion. It also generates tax revenues of €13.5 billion and jobs for more than 290,000 people.

This is before taking into account the added economic benefits of the manufacturing of motorcycle accessories, and activities such as motorcycle sports and other events."

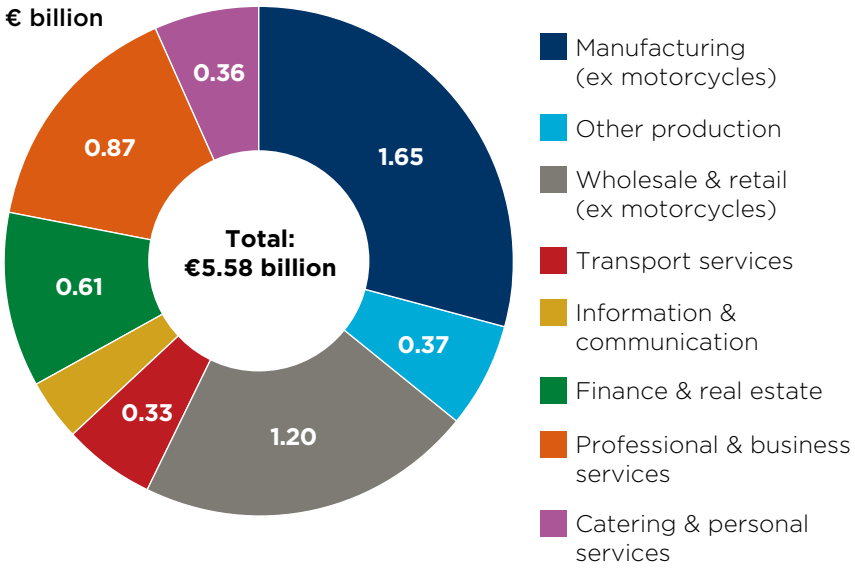
3.2 INDIRECT IMPACT

The indirect impact of the sector in 2019 is put at €5.6 billion, in terms of GDP, produced by nearly 89,000 workers across the EU and UK. Fig. 13 breaks down this indirect GDP by broad industry of the supplier. Some 30% of this activity is found to be in other parts of the manufacturing sector, 22% in other parts of the wholesale and retail distribution sector, 16% in professional and business services, and 11% in financial and real estate services.

The pattern of employment supported in the indirect channel is rather different, reflecting variations in GDP per job (labour productivity) between the sectors. Here, 29% of supply chain jobs are found in other parts of the distribution sector, 27% in other parts of the manufacturing sector, 19% in professional and business services, and 4% in finance and real estate (see Fig. 14).

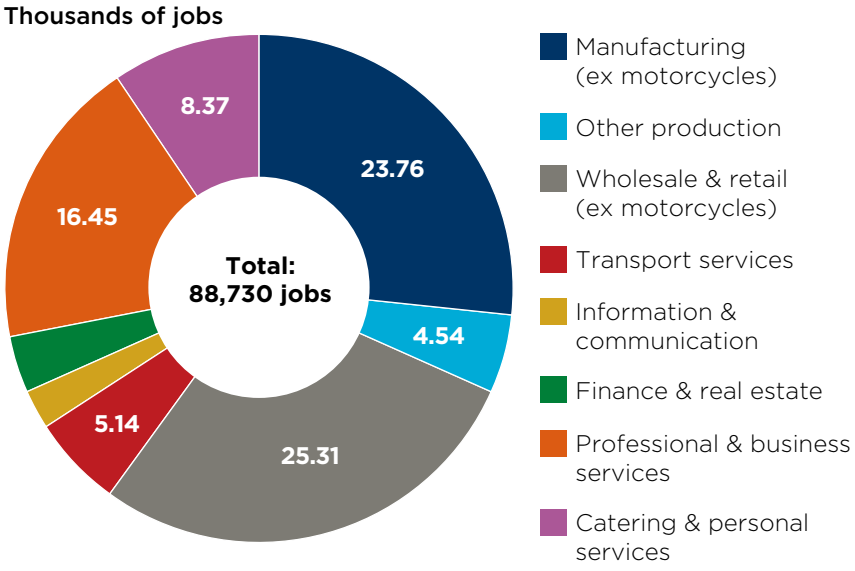
The indirect tax impact reflects taxes on work and business paid by firms and workers in the motorcycle manufacturers and traders' European supply chain. These amounted to €2.0 billion in 2019.

Fig. 13: Indirect GDP impact by industry of supplier in 2019



Source: Oxford Economics

Fig. 14: Indirect jobs impact by industry of employer in 2019



Source: Oxford Economics

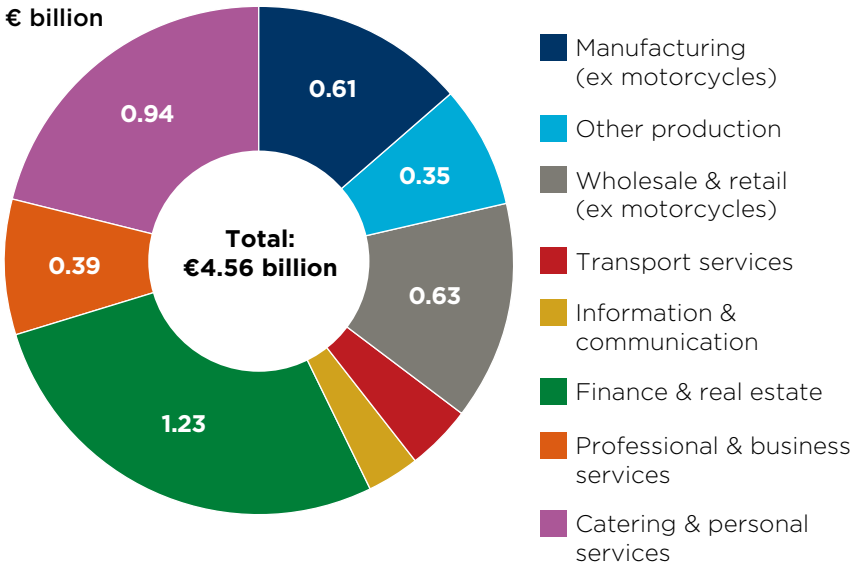
3.3 INDUCED IMPACT

In the induced channel, the wage-financed spending of the sector's staff and those in its supply chain is estimated to have supported a further €4.6 billion contribution to European GDP, and almost 69,000 jobs. The industries that benefit are rather different to those in the indirect channel, as the induced channel reflects household spending patterns rather than purely business-to-business transactions. Some 27% of induced GDP is found in financial services and real estate (including property rental), 21% in catering and personal services, 14% in wholesale and retail, and 13% in manufacturing (see Fig. 15).

Of the induced jobs, 23,800, or 35%, are in the catering and personal services industries, and 12,900, or 19%, in wholesale and retail activities (see Fig. 16).

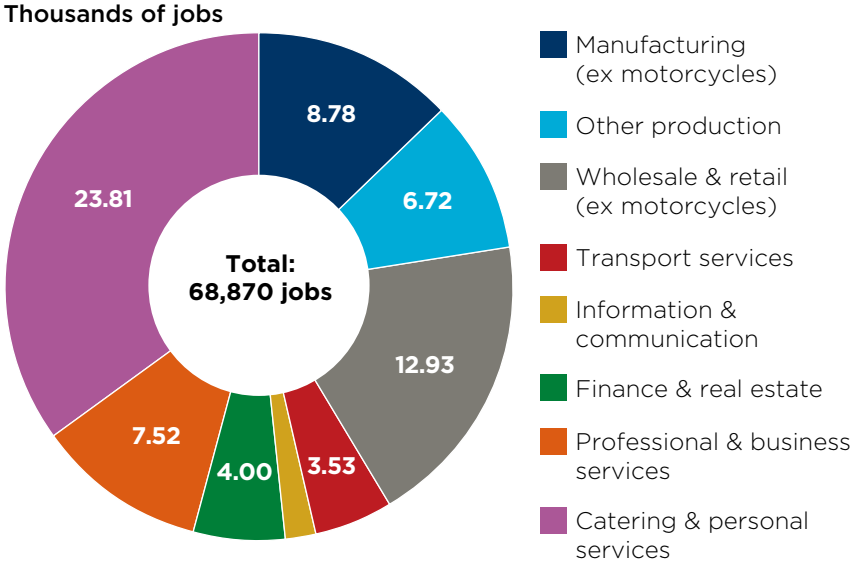
The induced tax impact is estimated to have been €2.1 billion in 2019, with this comprising €1.6 billion of taxes on work and business in the consumer-facing supply chain, and €0.5 billion of taxes (such as VAT and excises) on the workers' spending supporting that activity.

Fig. 15: Induced GDP impact by industry of supplier in 2019



Source: Oxford Economics

Fig. 16: Induced jobs impact by industry of employer in 2019



Source: Oxford Economics

3.4 ENABLED TAX IMPACT

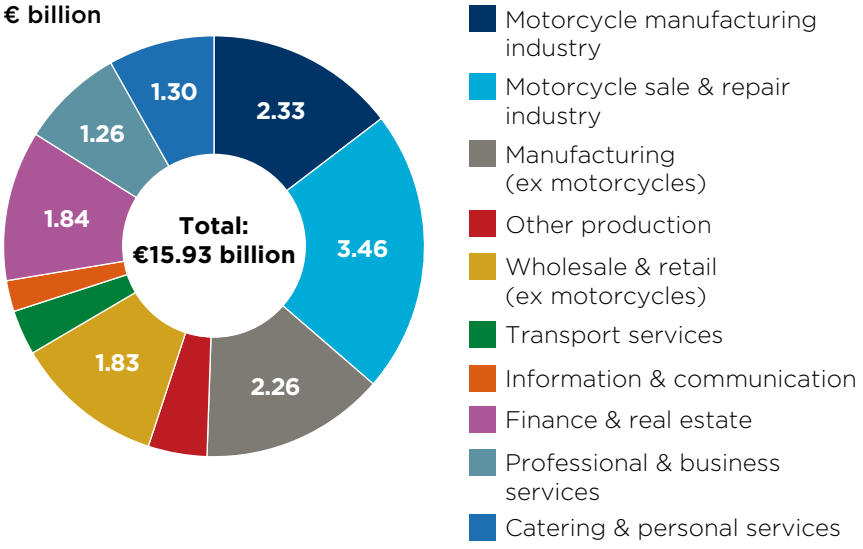
As well as the direct, indirect, and induced tax impacts described above, final users of motorcycles resident in Europe are estimated to have paid broadly €3.7 billion in road fuel duties, and €0.7 billion in licence fees or road user taxes. This total enabled tax impact, of €4.4 billion, is in addition to the VAT paid by these users on their purchases of motorcycles, parts, maintenance, and repairs, which is already captured in the sector's direct tax impact.

3.5 TOTAL ECONOMIC IMPACT BY INDUSTRY AND COUNTRY

As the GDP "multiplier" is just under three, the motorcycle manufacturing and trading sector itself accounts for just over a third of the total GDP impact (see Fig. 17). Of the remainder, 14% of the total GDP contribution is accounted for by non-motorcycle manufacturing, 12% by finance and real estate, 11% by the non-motorcycle wholesale and retail sector, 8% by catering and personal services, and 8% by professional and business services.

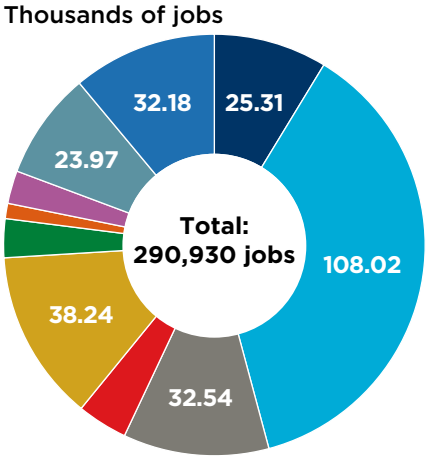
Meanwhile, motorcycle manufacturers and traders account for 46% of the total jobs impact, with most of that employment in the independent sale and repair industry (see Fig. 18). Some 13% of the total employment impact is in non-motorcycle distribution, 11% in non-motorcycle manufacturing, 11% in catering and personal services, and 8% in professional and business services.

Fig. 17: Total GDP impact by industry of supplier in 2019



Source: Oxford Economics

Fig. 18: Total jobs impact by industry of employer in 2019



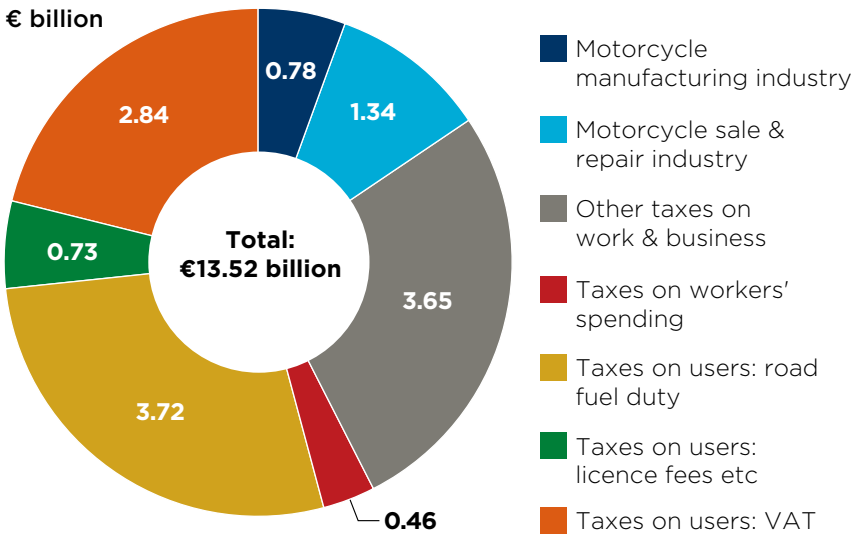
Source: Oxford Economics

"In 2019 users of motorcycles in Europe paid about €4.4 billion in road fuel duties and licence fees or road user taxes. This total is in addition to the €2.8 billion VAT paid by the users on their purchases of motorcycles, parts, maintenance, and repairs."

Of the total tax impact of €13.5 billion, taxes on motorcycles users, including VAT, road fuel duties, licence fees, and road user taxes, account for €7.3 billion, or 54% of the total. Taxes on work and business in the direct, indirect, and induced channels account for €5.8 billion, or 43%, and taxes on workers' spending for €0.5 billion, or 3% (see Fig. 19).

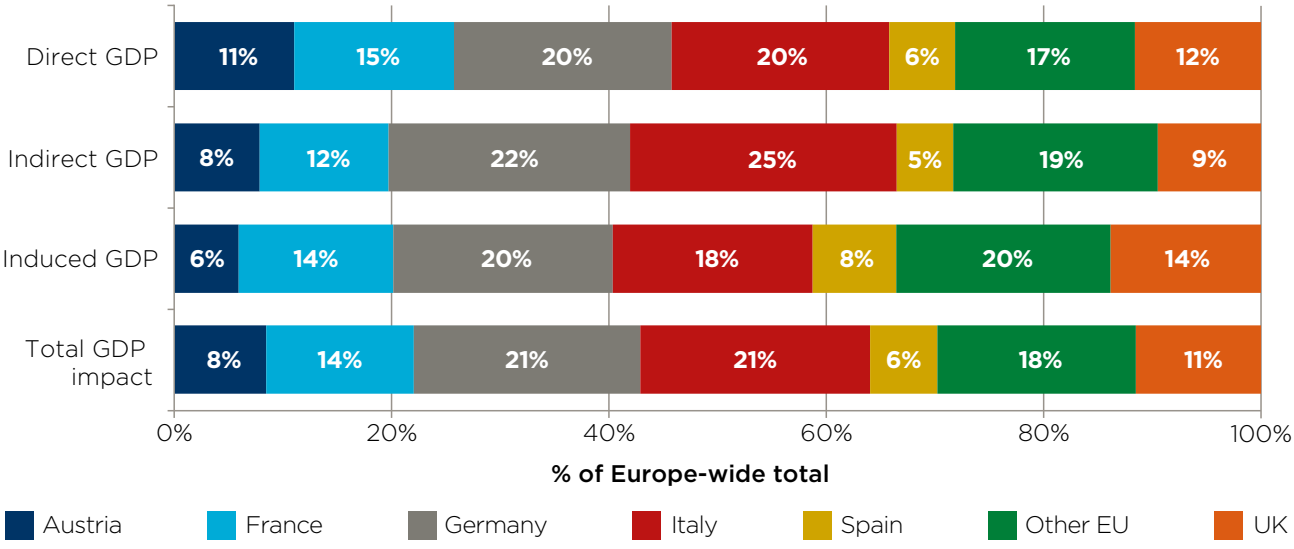
By country, Italy accounts for 21% of the total Europe-wide GDP impact, Germany for 21%, France for 14%, the UK for 11%, Austria for 8%, and Spain for 6%. This is illustrated in Fig. 20, which also shows the geographical distribution of the three separate channels of impact.

Fig. 19: Total tax impact by sector of taxpayer and type of tax in 2019



Source: Oxford Economics

Fig. 20: GDP impacts by country of supplier in 2019

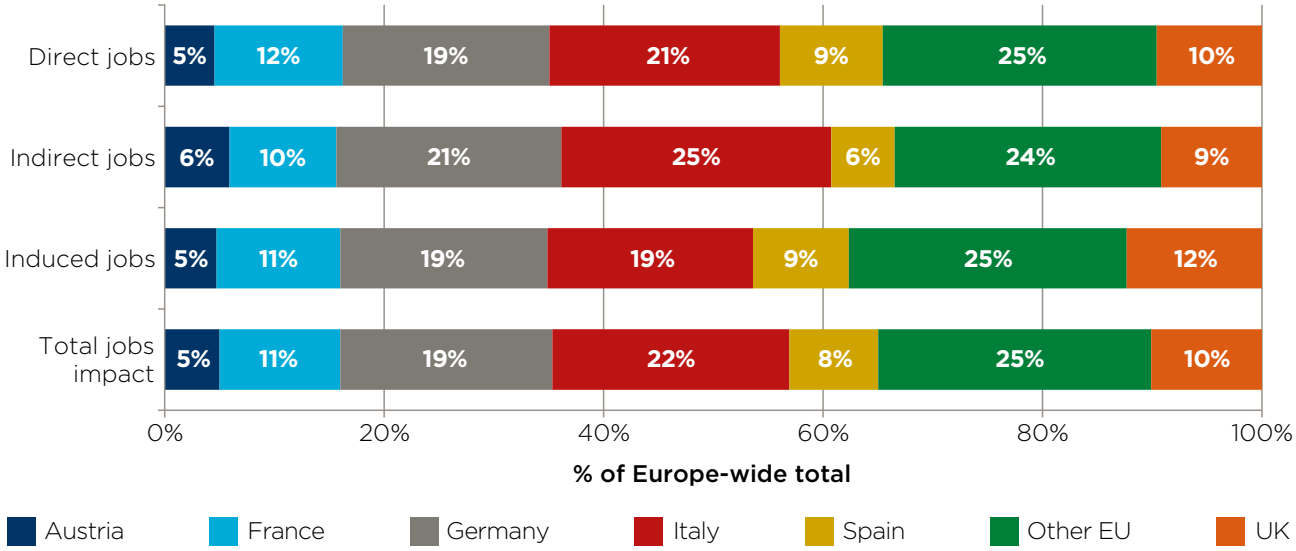


Source: Oxford Economics

Of the total Europe-wide employment impact, 22% of jobs are located in Italy, 19% in Germany, 11% in France, 10% in the UK, 8% in Spain, and 5% in Austria (see Fig. 21).

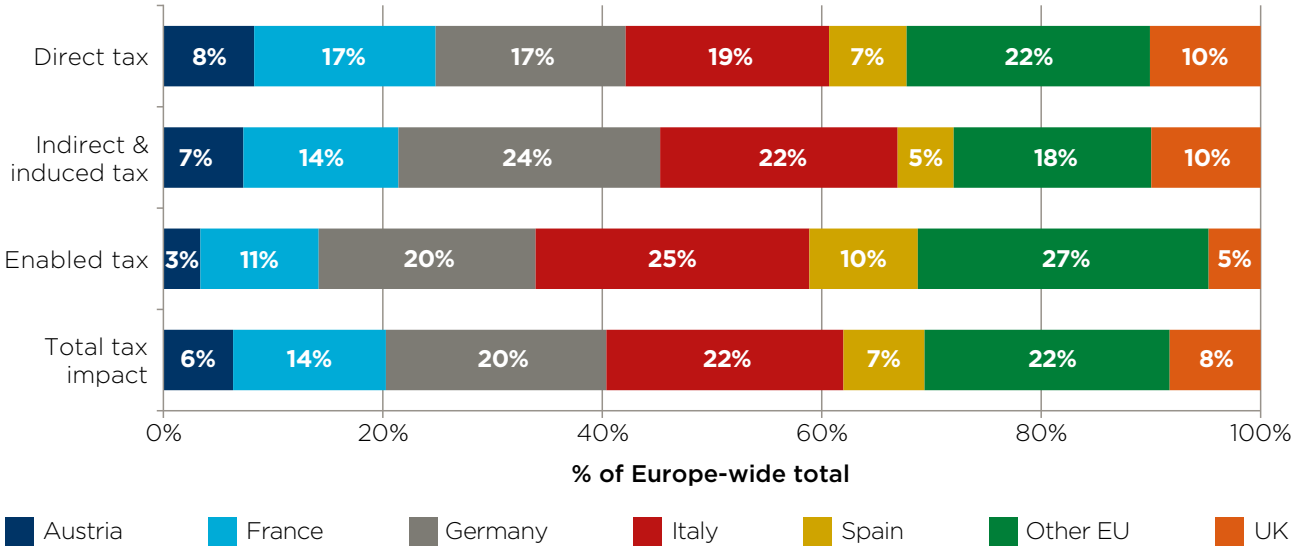
Finally, Italy accounts for 22% of the total Europe-wide tax impact, Germany for 20%, France for 14%, the UK for 8%, Spain for 7%, and Austria for 6% (see Fig. 22).

Fig. 21: Employment impacts by country of workplace in 2019



Source: Oxford Economics

Fig. 22: Tax impacts by country of taxpayer in 2019



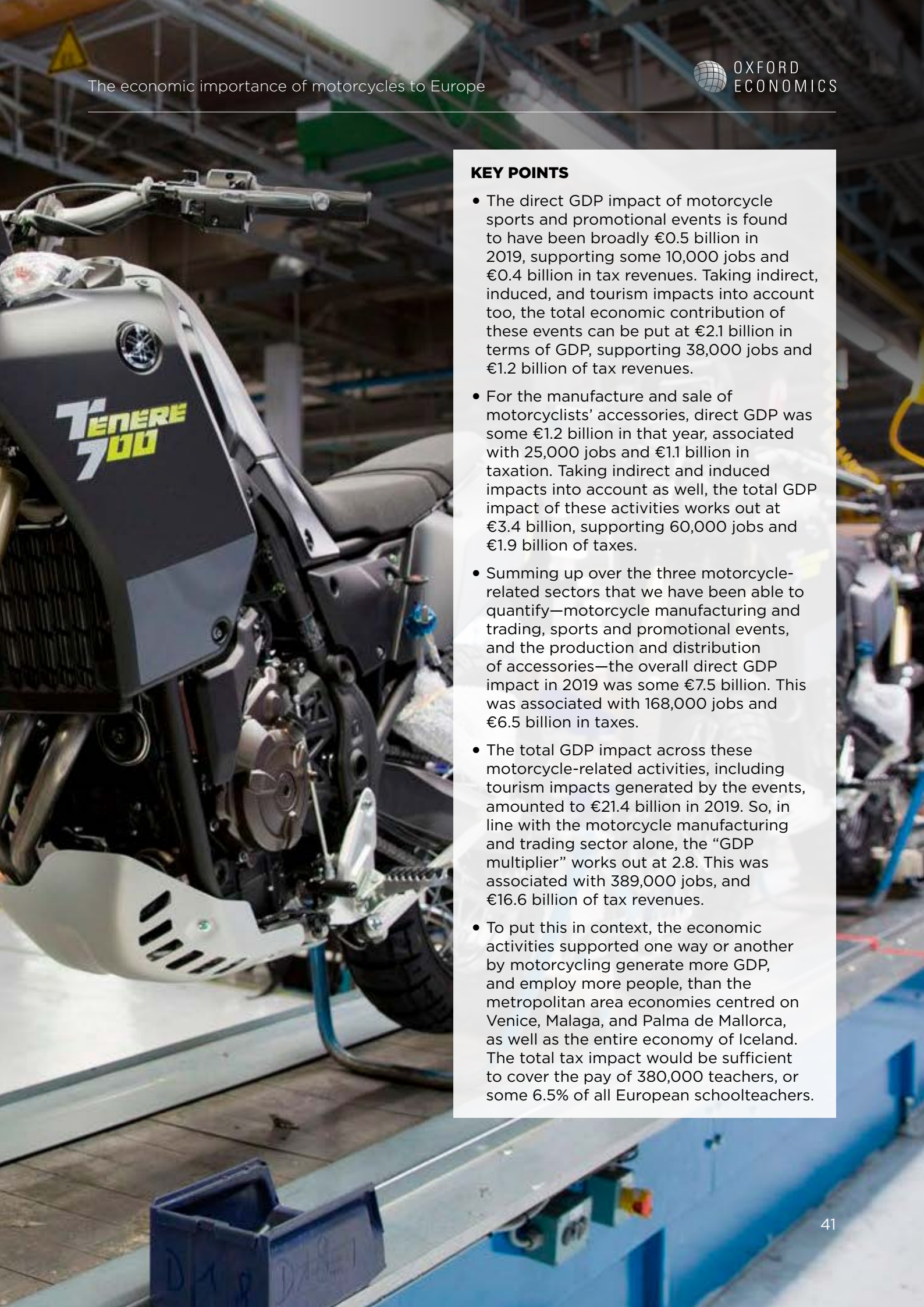
Source: Oxford Economics



PART B

THE IMPACT ON THE EUROPEAN ECONOMY OF MOTORCYCLE-RELATED ACTIVITIES



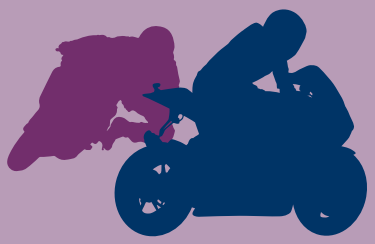


KEY POINTS

- The direct GDP impact of motorcycle sports and promotional events is found to have been broadly €0.5 billion in 2019, supporting some 10,000 jobs and €0.4 billion in tax revenues. Taking indirect, induced, and tourism impacts into account too, the total economic contribution of these events can be put at €2.1 billion in terms of GDP, supporting 38,000 jobs and €1.2 billion of tax revenues.
- For the manufacture and sale of motorcyclists' accessories, direct GDP was some €1.2 billion in that year, associated with 25,000 jobs and €1.1 billion in taxation. Taking indirect and induced impacts into account as well, the total GDP impact of these activities works out at €3.4 billion, supporting 60,000 jobs and €1.9 billion of taxes.
- Summing up over the three motorcycle-related sectors that we have been able to quantify—motorcycle manufacturing and trading, sports and promotional events, and the production and distribution of accessories—the overall direct GDP impact in 2019 was some €7.5 billion. This was associated with 168,000 jobs and €6.5 billion in taxes.
- The total GDP impact across these motorcycle-related activities, including tourism impacts generated by the events, amounted to €21.4 billion in 2019. So, in line with the motorcycle manufacturing and trading sector alone, the "GDP multiplier" works out at 2.8. This was associated with 389,000 jobs, and €16.6 billion of tax revenues.
- To put this in context, the economic activities supported one way or another by motorcycling generate more GDP, and employ more people, than the metropolitan area economies centred on Venice, Malaga, and Palma de Mallorca, as well as the entire economy of Iceland. The total tax impact would be sufficient to cover the pay of 380,000 teachers, or some 6.5% of all European schoolteachers.

ECONOMIC IMPACT OF MOTORCYCLE-RELATED ACTIVITIES

5 million spectators attended major motorcycle sporting events in 2019.



MotoGP attracted **1.8 million** spectators to its 12 European races in the 2019 season.

1.5 million international race spectators collectively spent **€319 million** attending race events across Europe in 2019.



2.5 million individuals attending motorcycle trade fairs and manufacturers' promotional events in 2019.

Total economic impact supported by motorcycle sports, events and related tourism activities in the EU + UK.



€2.1 billion
GDP contribution



38,000
Jobs contribution



€1.2 billion
Yearly tax contribution

Total economic impact supported by the production and distribution of motorcycle accessories.





€3.3 billion
GDP contribution



59,000
Jobs contribution



€1.9 billion
Yearly tax contribution




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DUCATI

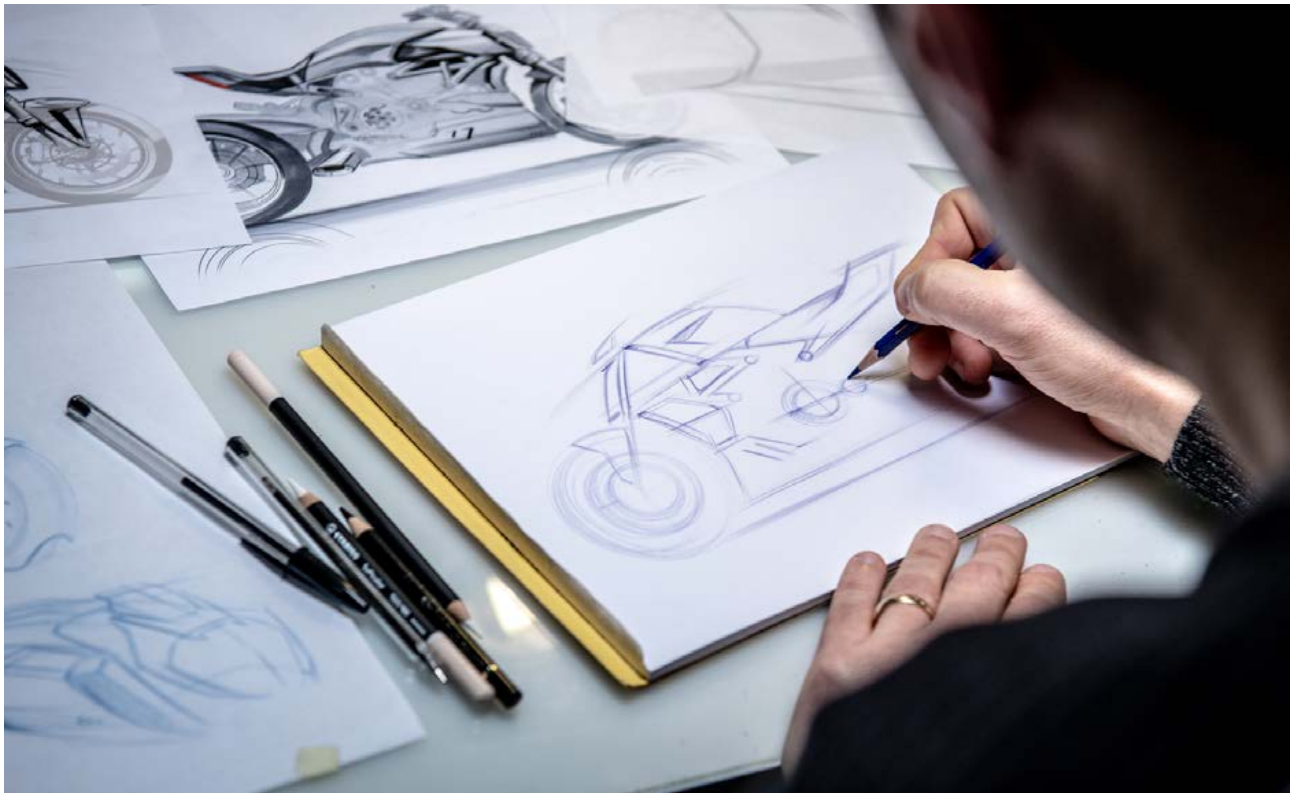
4. OVERVIEW OF MOTORCYCLE-RELATED ACTIVITIES

Part A of this report set out the importance to the European economy of the production, distribution and repair of motorcycles and parts, through direct impacts, supply chain linkages, and wage-funded employee spending. But the contribution of motorcycles and motorcycling to the continent's economy does not end there. Many further activities are only made possible by the existence of motorcycles, and these also support wealth creation, employment, and government finances across Europe. These related activities are explored in this part of the report.

In terms of the analysis undertaken for this study, these additional activities fall into two broad categories:

- Suppliers of specialist goods and services to motorcycle manufacturers and traders. These activities are briefly described in Section 4.1 below, but their impact on the economy forms part of the manufacturers and traders' total impact, already captured in Part A.
- Providers of goods and services to motorcycle users and enthusiasts, and their specialist suppliers, plus providers of services dependent on the use of motorcycles. These are described in Section 4.2.

Unfortunately, it has not been possible to robustly quantify the impact of all of the 'additional' activities in the second of these groups, but estimates have been produced for two sectors of significance: sports and promotional events, and the manufacture and sale of motorcyclists' accessories. Those estimates are presented in Chapters 5 and 6, while Section 4.3 sets out the total impact on the European economy of all three sectors quantified in this report.



4.1 SUPPLIERS TO MOTORCYCLE MANUFACTURERS AND TRADERS

The indirect impact of the motorcycle manufacturing and trading sector, set out above in Section 3.2, reflects the value of activity in the European part of that sector's global supply chain. This includes the activities of businesses selling products directly to the manufacturers, distributors, and repairers, and those of their European-based suppliers in turn.

Some of these goods and services could be regarded as being closely-related to the motorcycle manufacturing and trading sector, in the sense that they are specifically designed around those customers, and would not exist in the absence of those clients. Or put another way, these activities could be seen as part of the 'motorcycle industry broadly-defined'.[17] They can therefore be contrasted with other supplies to the trade—such as electricity or basic business banking services—which are much more generic in nature.

For the purposes of this study, the manufacture of parts specifically made for motorcycles is included in the motorcycle manufacturing industry, and the value of that work is therefore counted in the direct rather than indirect impact.[18] But several other closely-related activities will be captured in the indirect channel instead. These include:

- Laboratories involved in standard-setting and certification of motorcycles and parts, including with regard to safety aspects.
- Specially-tailored logistics companies, such as those involved in delivering motorcycles to customers.
- Specialist business finance providers.
- Specialist business insurance services.
- Producers of user manuals to be provided with new motorcycles.
- Publishers of news, magazines, and journals for the trade.

Based on the modelled split in the manufacturers and traders' procurement by product type, these providers could account for up to 11% of the indirect GDP impact of the motorcycle manufacturers and traders, or for up to 21% if the GDP of their supply chain is also counted (so up to €1.2 billion). Their share of the associated indirect jobs impact could be up to 6%—taking into account their high labour productivity—or a maximum of 16% including the European jobs supported by their spending on supplies (so up to 14,000 jobs).[19]

In addition, the share of the motorcycle manufacturers and traders' induced impact associated with this specialist part of the supply chain could be up to 10% in the case of GDP (broadly €470 million), and a maximum of 8% in the case of employment (around 5,800 jobs).

However, there is a sense in which these proportions underplay the importance of these specialist providers to motorcycle manufacturers and traders—and vice versa. This close inter-dependence is reflected in their contact with, and involvement in, the various national trade associations affiliated to ACEM.

[17] Activities such as these are sometimes described as the 'upstream' part of the motorcycle-related sector.
[18] Components of a more generic rather than motorcycle-specific nature, such as metal sheets and sections, lightbulbs, and nuts and bolts, will however be captured in the indirect rather than direct values.
[19] The majority of this indirect GDP is accounted for by a range of generic manufacturing industries—such as chemicals (e.g. for paint), basic metal production, rubber and plastic production, and the manufacture of tools and machinery components—as well as machinery installation and maintenance services, energy generation and supply, and wholesalers' activities.

4.2 OTHER MOTORCYCLE-RELATED ACTIVITIES

4.2.1 Provision for motorcyclists and motorcycling enthusiasts

Many goods and services are provided directly to users of motorcycles, and other motorcycling enthusiasts (in addition to vehicles, parts, and repair services). Unlike the businesses supplying motorcycle manufacturers, traders, and repairers, described above, the impact on the European economy of these activities is not captured anywhere in the economic impact set out in Chapter 3.

Two major sectors here are the organisation of motorcycle-related events—including sporting events and other promotional events such as trade fairs—and the manufacture and distribution of helmets, clothing, and other accessories for motorcyclists. These sectors, and their measured economic impacts, are described in Chapters 5 and 6 respectively.

The measured impacts set out there will capture, amongst much else, the value of specialist suppliers to those industries, including laboratory work relating to helmets and protective clothing. Europe is an important location for these activities, with Milan hosting the most important laboratory worldwide for work relating to helmets, and several laboratories located across Europe involved in the testing and certification of protective clothing and footwear.

A wide range of other provision for motorcyclists also takes place, although it has not been possible to robustly quantify the impact of these activities on the European economy. These operations include:

- Motorcycling-themed holidays generating tourism impacts.[20] These are of considerable importance in several European countries, including Germany, Italy, Spain, France, the UK, and Austria.
- Training for motorcyclists, provided by a wide range of both large and small independent businesses throughout each European country.
- Driving and vehicle insurance for motorcyclists, which is often provided by specialist businesses or divisions.
- Specialist consumer finance for motorcycle purchasers.

Provision of goods and services for motorcyclists by government agencies—from usable roads and traffic management to vehicle and rider licensing—can also be counted here.

In addition, a significant amount—possibly in the region of €7 billion per year—is spent by motorcyclists on road fuel. However, excise duty and VAT take a high proportion of that, and the annual after-tax amounts received by European refineries and distributors are likely to be less than €2 billion. Allowing for their purchases of inputs, including imported crude oil, the direct GDP impact of the European refineries and distributors providing fuel to European motorcyclists may be around €350 million, associated with 5,000 jobs (with most of these workers in distribution). The total Europe-wide GDP impact supported by motorcyclists' fuel use may be broadly €1.7 billion, associated with 27,000 jobs.

4.2.2 Other economic activity dependent on the use of motorcycles

Courier services using motorcycles have played an important part in the delivery of food, drink, and other goods to household consumers in recent years, with this role becoming more significant during the Covid-19-induced 'lockdown' periods of 2020. The vehicles are also used to deliver important documents, for other business-to-business transactions, and in vital health-related services including the transport of human organs and blood.

Again, it has not been possible to measure the precise economic impact of these services as part of this exercise, but their economic and social role should not be overlooked.

[20] The impact of trips and excursions centred around sports events is captured in the 'events' sector analysis.

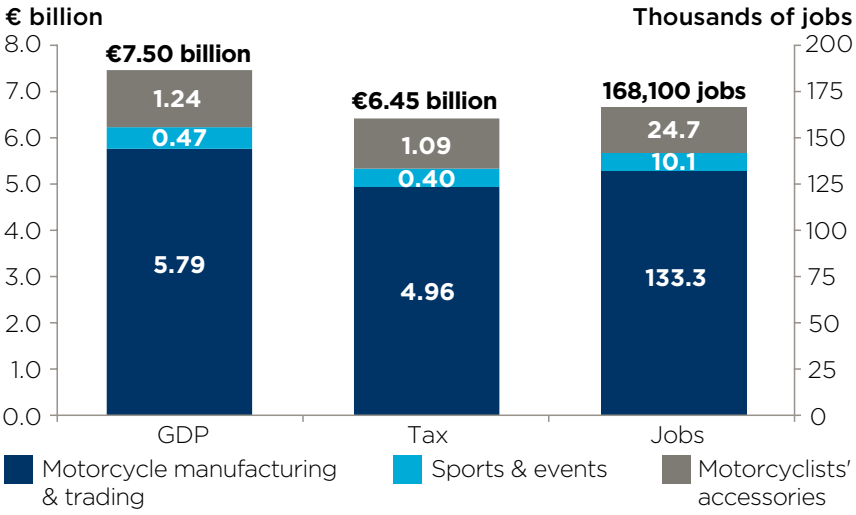
4.3 IMPACT OF ALL QUANTIFIED MOTORCYCLE-RELATED ACTIVITIES

The direct impacts of the three fully-quantified sectors in this report—motorcycle manufacturers and traders, motorcycle-related sports and promotional events, and the manufacture and sale of motorcyclists' accessories—are brought together in Fig. 23.

Altogether, the sectors directly generate €7.5 billion in GDP, supporting 168,100 jobs. Sports and events account for broadly 6% of the overall direct GDP, jobs, and tax impacts of the three sectors combined, and motorcyclists' accessories for around 16%.

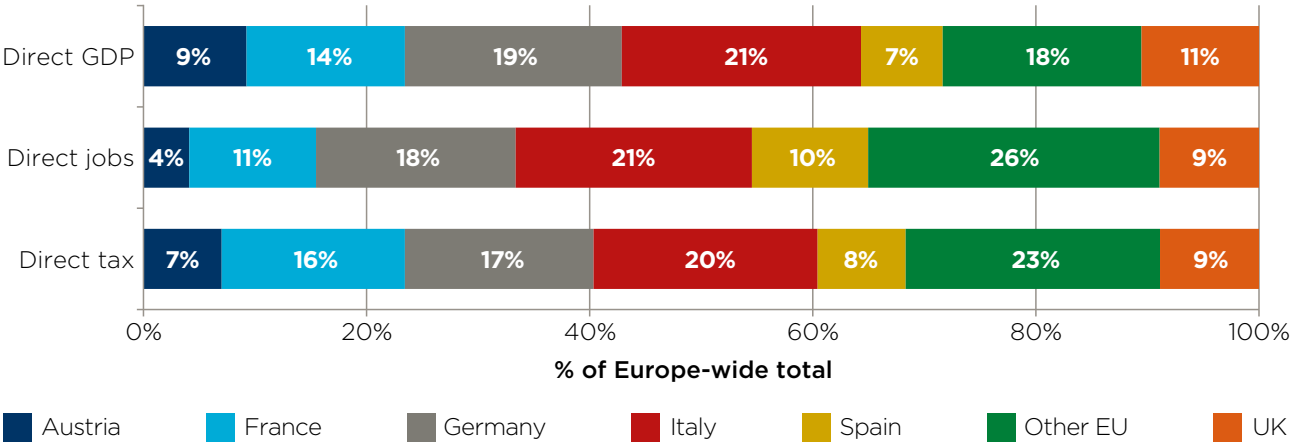
By country, the greatest direct GDP impact across all motorcycle-related activity occurs in Italy (21% of the European total), followed by Germany (19%), France (14%), the UK (11%), Austria (9%), and Spain (7%) (see Fig. 24). The employment and tax contributions follow a broadly similar pattern, except that in the case of jobs the shares accounted for by Spain and the 'Other EU' grouping are clearly higher, and those for Austria and France clearly lower.

Fig. 23: Direct economic impact of key motorcycle-related sectors in 2019



Source: Oxford Economics

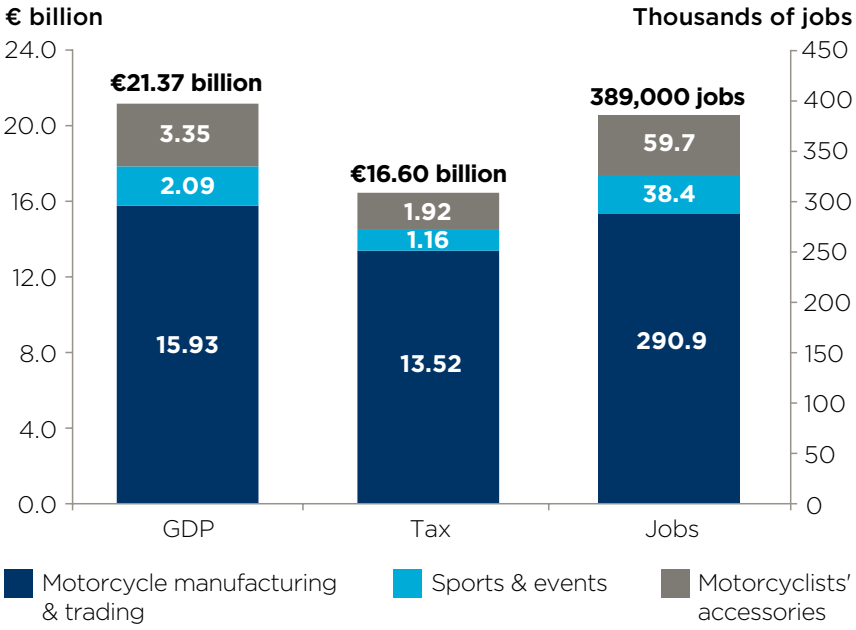
Fig. 24: Direct motorcycle-related economic impacts in 2019, by country



Source: Oxford Economics

The combined total impact is shown in Fig. 25. It can be seen that the total GDP impact of all of the quantified activities is €21.4 billion, associated with nearly 390,000 jobs and €16.6 billion in tax revenues. Events and accessories account for some 10% and 15%, respectively, of the overall total contribution to GDP and jobs. (This includes the tourism impact in the case of events.) The share of these sectors in the total tax impact is slightly lower than that, in each case, mainly due to the fact that road user and fuel taxes paid by motorcyclists are attributed to the motorcycle manufacturing and trading sector.

Fig. 25: Total economic impacts of key motorcycle-related sectors



Source: Oxford Economics

"In 2019, the motorcycle industry as a whole supported €21.4 billion of output (GDP) across Europe, associated with 389,000 jobs and €16.6 billion in tax revenues."

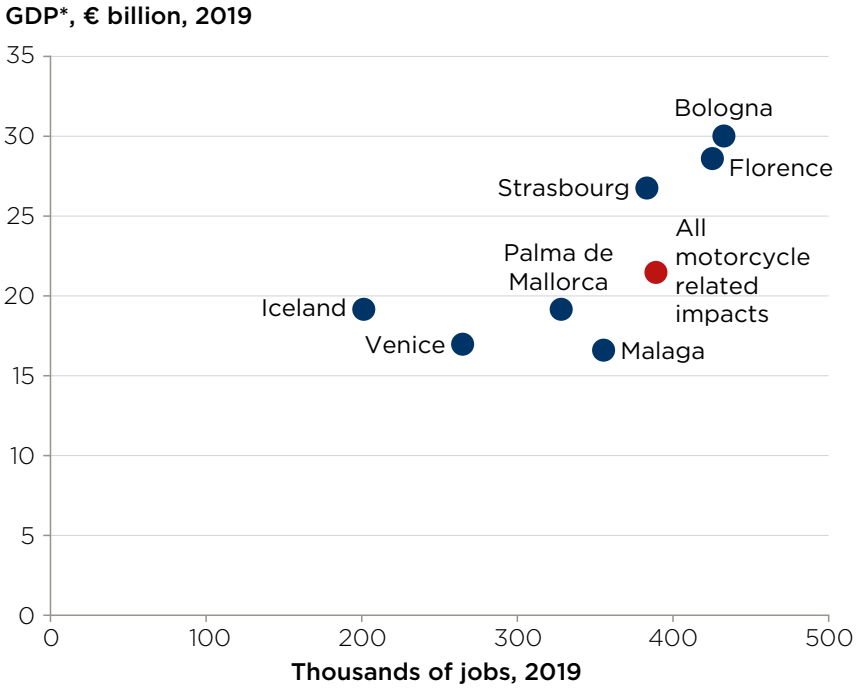
The €21.4 billion total means that, across the three motorcycle-related sectors combined, every €1 of GDP created directly by the businesses concerned generates a further €1.80 of GDP, due to supply chain linkages, wage-funded spending effects, and the additional tourism expenditure of event attenders. The "GDP multiplier" for the combined set of activities is therefore 2.8 (as it is for the motorcycle manufacturing and trading sector alone). The employment and tax multipliers are 2.3 and 2.6, respectively.

To put these values in context, the economic activities supported one way or another by motorcycling generate more GDP, and employ more people, than the metropolitan area economies centred on Venice, Malaga, and Palma de Mallorca, as well as the entire economy of Iceland (see Fig. 26). The scale of activity is also close to that of the urban economies centred on Florence, Strasbourg, and Bologna.

The total tax impact, of €16.6 billion, meanwhile, would be sufficient to cover the pay of 380,000 teachers across Europe—some 6.5% of all European schoolteachers—taking into account the country-by-country distribution of both the tax revenues and average teacher's pay.

By country, the greatest total GDP impact is found in Italy (23%), followed by Germany (20%), France (13%), the UK (11%), Spain (7%), and Austria (7%). The employment and tax impacts vary slightly from that, as shown in Fig. 27, with the shares in employment of Spain and the 'Other EU' grouping higher than in the case of GDP, and the shares of Austria and France lower.

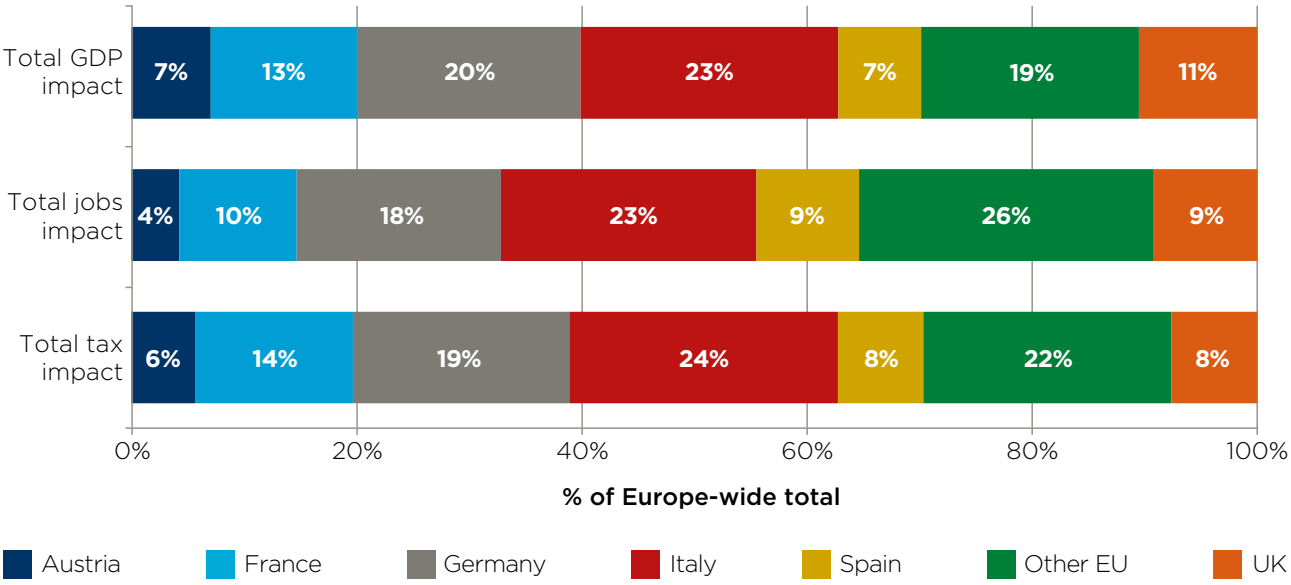
Fig. 26: Total impact of all motorcycle-related activity in context



Source: Oxford Economics

*Values for cities relate to metropolitan areas.

Fig. 27: Total motorcycle-related economic impacts in 2019, by country



Source: Oxford Economics


BOSCH
SHOWA
WORLDSBK


PROSECCO DOC
PURE EXCITEMENT
Kawasaki
SBK
.COM

5. MOTORCYCLE-RELATED EVENTS

Each year, millions of visitors attend motorcycle events across Europe. Sporting events, trade fairs, and events organised by Original Equipment Manufacturers (OEMs) generate economic activity in two ways. Event organisers and other businesses involved in running the events employ staff, and generate GDP and tax revenues.

"Attendees of motorcycle sports and events undertake expenditure elsewhere in the economy as they travel to events, stay in hotels, eat in restaurants, and purchase goods.

Many local economies benefit greatly from this aspect of motorcycling."

Their procurement and payment of wages stimulates economic activity along their supply chain (indirect impacts) and in the consumer economy (induced impacts). This follows the methodology previously outlined in Part A.

Attendees of motorcycle sports and events also undertake expenditure elsewhere in the economy as they travel to events, stay in hotels, eat in restaurants, and purchase souvenirs. This expenditure stimulates economic activity in the tourist-facing sectors and their supply chain, through the so-called 'tourism' impact.

This chapter quantifies the economic contribution of major motorcycle sporting and promotional (trade and OEM-organised) events that took place in the EU-27 and UK in 2019, for which data and information were available. The events that are included in this analysis are shown in Fig. 28, overleaf.

Estimates on the economic activity supported by these events—including their employment, how much they spent on organising and running the events, visitor numbers, where they visited from, and how much they spent—are based on survey responses from OEMs, national associations, and other associated parties.[21] The survey responses are complemented by desk research from Oxford Economics and any additional assumptions are outlined in the analysis.



[21] Oxford Economics would like to thank ACEM, ADAC, ANCMA, ANESDOR, APIA, Arge2Rad, BMW, Ducati, FEBIAC, FFMoto, FIM, Harley Davidson, Honda, Infont Moto Racing, IVM, Kawasaki, KTM, MCRF, PZM, TKL, and Yamaha for contributing to this analysis.

Fig. 28: Major motorcycle sports and events in 2019 that are included in this analysis

SPORTING EVENTS			
Event	**Country**	**Event**	**Country**
Circuit racing		**Enduro**	
MotoE World Cup	Various	Superenduro	Various
World Superbike (including support series)	Various	EnduroGP (including support series)	Various
MotoGP (including support series)	Various	International six days Enduro	Portugal
Endurance	Various	World Enduro Super Series	Various
Sidecar	Various	**Trial**	
Motocross		Trial World Championship	Various
E-Xbike World Cup	Italy	X-trial	Various
MXGP (including support series)	Various	Trial of Nations	Spain
Motocross of nations	Netherlands	**Other events**	
Supermoto of nations	France	Superbiker Mettet	Belgium
Track racing		Isle of Man TT	UK
Speedway of nations	Various	NW200	UK
Speedway Grand Prix	Various	Enduropale du Touquet	France
Speedway Grand Prix qualifiers	Various	Bajas rally	Various
Speedway Euro Championships	Various		

PROMOTIONAL EVENTS			
Trade fairs			
Moto Austria	Austria	EICMA Milan	Italy
Brussels Motor Show	Belgium	Roma Motodays	Italy
MP19 Messukeskus	Finland	MBE - Motorbike Expo Verona	Italy
Lyon Fair	France	Motorbeurs Utrecht	Netherlands
Marseille Moto show	France	Wroclaw Motorcycle Show	Poland
Motorräder Dortmund	Germany	Warsaw Motorcycle Show	Poland
IMOT Munchen	Germany	SMAEB	Romania
Motorrad Welt Bodensee, Friedrichshafen	Germany	Vive la Moto	Spain
BMT Berliner	Germany	MC Massan	Sweden
Zweiradmesse Leipzig	Germany	MCN London	UK
OEM events[22]			
Harley Davidson's Europe Bike Week	Austria	Riding Season	Italy
Ducati speed week	Austria	Honda Live Tour (test rides)	Italy
Wheels and Waves	France	Kawasaki Day	Italy
Journées Nationales de la Moto et des Motards	France	Rider 1000	Spain
KTM Mania	France	Instruction Courses	Spain
Hamburg Harley Days	Germany	Open Doors	Spain
BMW Motorrad days	Germany	Mälaren Runt	Sweden
Glemseck 101	Germany	Start to Ride	Sweden
Kawasaki Days	Germany	World of Kawasaki	UK
Adventure Week 2018	Germany	Ron Haslam Race School	UK
Neo Sports Café Week 2019	Germany	Dave Thorpe Off Road Centre	UK

[22] Only OEM-organised events with over 1,000 attendees are included in this table with a view to brevity.

5.1 SPORTING EVENTS

An estimated five million spectators attended major motorcycle sporting events across the EU-27 and UK in 2019.[23] MotoGP, the premier class of circuit racing, attracted an estimated 1.8 million spectators to its 12 European races in the 2019 season. While 420,000 attended the eight European MXGP races, and an estimated 413,000 spectators were attracted to the eight World Superbike races in European Countries.

"About 5 million spectators attended major motorcycle sporting events across the EU-27 and UK in 2019.

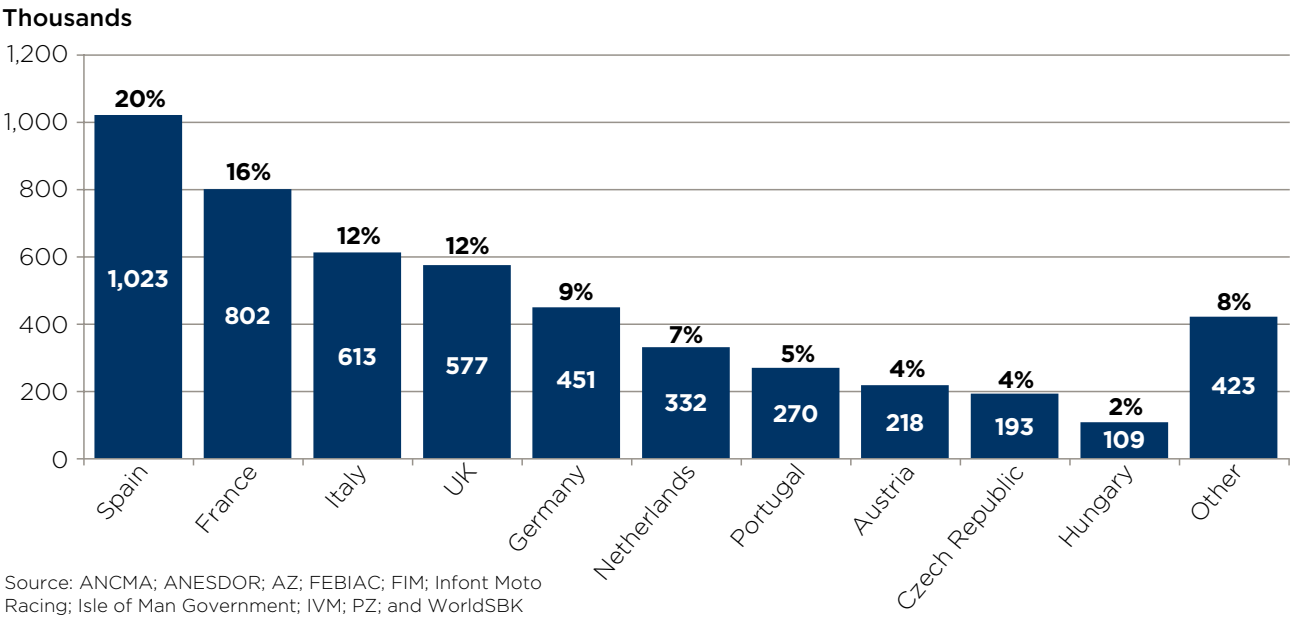
MotoGP attracted 1.8 million spectators to its 12 European races in the 2019 season."

More people went to a major motorcycle sporting event in Spain in 2019, than any other country in Europe. Over one million people attended events including the four (out of twelve) European MotoGP races the country hosted in the 2019 season, and its two World Superbike events. This is 20% of total spectator numbers across Europe, and is equivalent to 19% of the number of motorcycles and mopeds vehicles registered in Spain. Major French races attracted the second most spectators at 802,000, or 16% of total in Europe. This includes the 300,000 spectators at the Enduropale du Touquet, along with popular MotoGP and Endurance events at Le Mans.[24]

5.1.1 Direct impact

The direct economic impact refers to the economic activity generated by the businesses involved in organising and running motorcycle sporting events in Europe. We measure this impact using three metrics: the contribution to GDP, the number of full year equivalent jobs created, and tax receipts generated (Fig. 30). Motorcycle sporting events are estimated to have generated a €395 million gross value added contribution to European GDP in 2019.

Fig. 29: Estimated race attendance in 2019



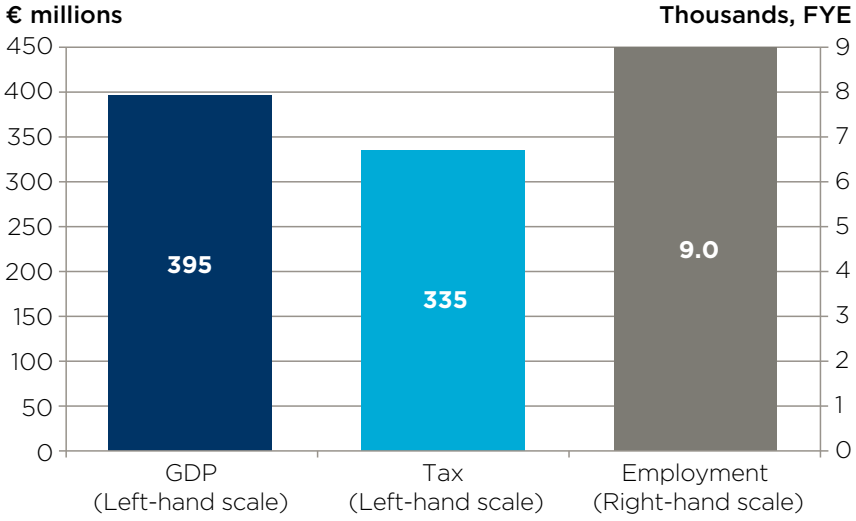
Source: ANCMA; ANESDOR; AZ; FEBIAC; FIM; Infont Moto Racing; Isle of Man Government; IVM; PZ; and WorldSBK

[23] Attendance numbers are provided by race organisers, national associations and other associated parties are used where possible. Where data are not available, the attendance of major sporting events is estimated. For races that are part of a series, the average number of spectators from other races in the series is applied. Where this is not known, the FIM average of 25,000 spectators per event is used.
[24] EY (2019) 'Moteurs de croissance: Réalités, enjeux et perspectives économiques de la filière des sports mécaniques en France.'

The major motorcycle sporting events generated the equivalent of 9,000 full year equivalent jobs. This is based on the survey responses of multiple national associations, OEMs, and race organisers. It can be split into two categories. There are an estimated 8,700 workers employed year-round in organising, operating, and competing in race events. While a further 34,900 workers are employed on race weekends, which is equivalent to 300 full year equivalent roles (assuming a three-day race weekend).[25] Unsurprisingly, the greatest number of people employed in jobs organising or running these sporting events were in Spain (1,800 jobs or 20% of the total in Europe). This was followed by France and Italy, with 1,400 (16%) and 1,100 jobs (12%), respectively.

The major motorcycle races generated an estimated €335 million in tax receipts in 2019. This mainly consisted of income tax revenues, which totalled €282 million across the European countries. A further €33 million was generated through VAT payments on ticket sales, which totalled an estimated €159 million for the sporting events.[26]

Fig. 30: The direct impact of sporting events in the EU-27 and UK in 2019



Source: Oxford Economics

5.1.2 Indirect impact

To organise and operate race events, businesses purchase inputs of goods and services from suppliers. This procurement stimulates further economic activity known as the indirect, or supply chain, impact. It is estimated that race organisers spent €190 million with suppliers in 2019.

This procurement stimulated a further €153 million gross value added contribution to GDP across the EU27 and UK in 2019, and supported 2,500 jobs along the supply chain. Some 480 of these jobs were supported in the business services sector, while a further 400 jobs were supported in the wholesale and retail sector. An estimated €64 million in tax receipts were paid by firms and workers along the organisers' European supply chain.

5.1.3 Induced impact

The firms and bodies responsible for organising and running the race events are estimated to have paid their staff an estimated €307 million in wages across the EU-27 and UK in 2019.[27] Some €298 million of these wages were paid to the 8,700 permanent workers at an average of €34,100 per annum. The remaining €9.8 million in wages are paid to workers involved only in race weekends, at an average of €280 per race weekend.

[25] It is assumed 20% of the direct jobs generated at a race weekend are permanent roles.
[26] This is estimated by applying each countries' effective VAT rate to the total value of its ticket sales.
[27] This is based on the average wages for the wider Arts, Entertainment, and Recreation sector, that contains sporting events and their organisation, from each country sourced from Eurostat (2020) 'Mean annual earnings by sex, age and economic activity.'

The wage-financed spending of these staff, along with the staff in the organisers' supply chain, is estimated to have supported a €250 million gross value added contribution to GDP, and 3,600 jobs. Because the induced channel reflects the household spending patterns of these staff, the greatest contribution to GDP was found in the real estate sector (18% of the total), followed by the wholesale and retail sector (14% of the total).

The induced tax impact is estimated to have been €95 million across European countries in 2019. This included €74 million in labour taxes, and €11 million in product taxes (such as VAT).

"Every spectator going to major motorcycle races spends an average of €250 to attend the event. This includes items such as food, travel, accommodation, the ticket price, and merchandising."

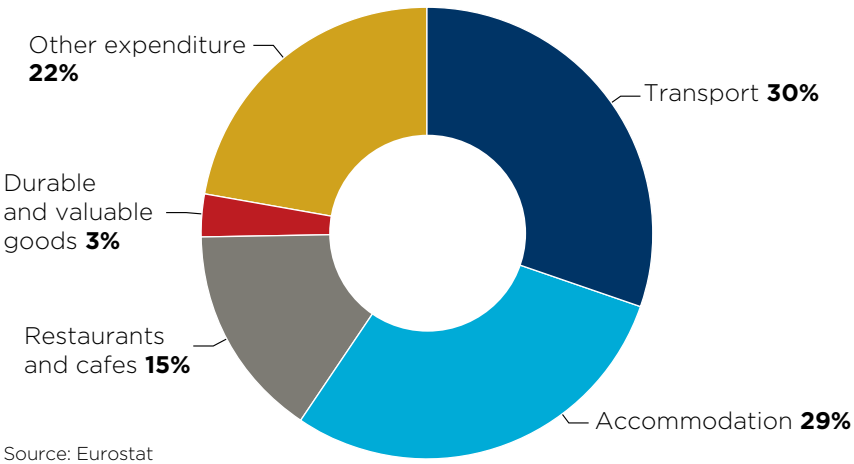
5.1.4 Tourism impact

Race spectators also stimulate economic activity for other types of business due to their 'incidental' spending—as they stay in hotels, eat in restaurants, travel on trains and coaches, and purchase souvenirs—during their trips. This spending generates activity in those tourist-facing sectors and their supply chains, contributing further to the European economy.

The Fédération Internationale de Motocyclisme (FIM) estimates that spectators going to major motorcycle races spend an average of €250 to attend the event. This includes the ticket price, merchandising, food, travel, and accommodation (Fig. 31).[28] In our estimation of the tourism impact associated with sporting events, we only consider the expenditure of international spectators, so as to capture the additional spending that occurs in a country due to the events.[29] Some 30% of the spectators at MotoGP and MXGP races are estimated to be international, so this share is applied to all the major motorcycling events. Based on this, it is estimated that 1.5 million international race spectators collectively spent €319 million attending race events across European countries in 2019.

In 2019, international spectators' expenditure is estimated to have stimulated a €376 million gross value added contribution to European GDP (Fig. 32). Some 21% of this contribution occurred in the wholesale and retail sector, with 20% in the accommodation and food services sector, and 15% in the transportation sector. The spending of international spectators also supported 7,200 jobs. By country, the most jobs were supported in Spain (1,400 jobs), followed by the UK (810 jobs). Some €158 million in tax receipts were supported by international spectators attending L category sporting events during the year.

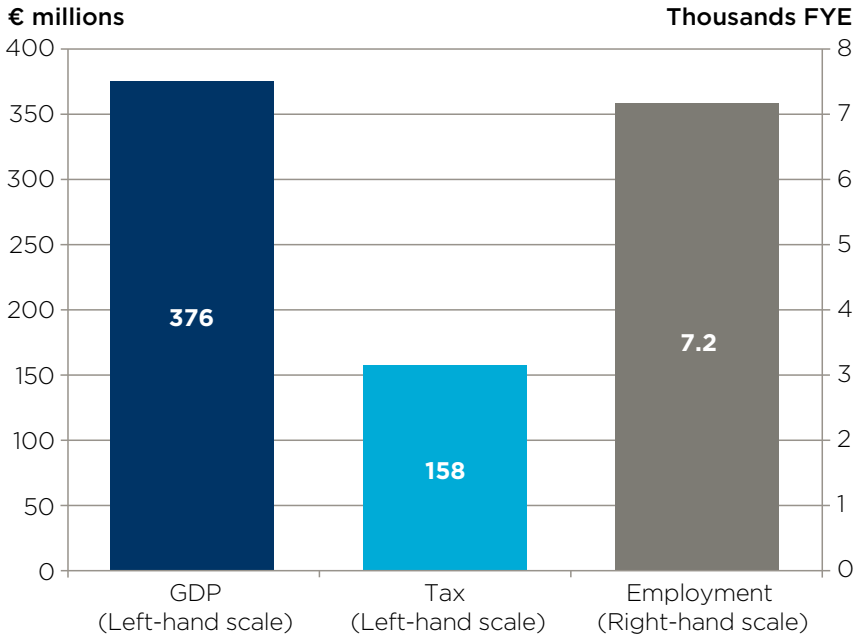
Fig. 31: International spectator's expenditure



Source: Eurostat

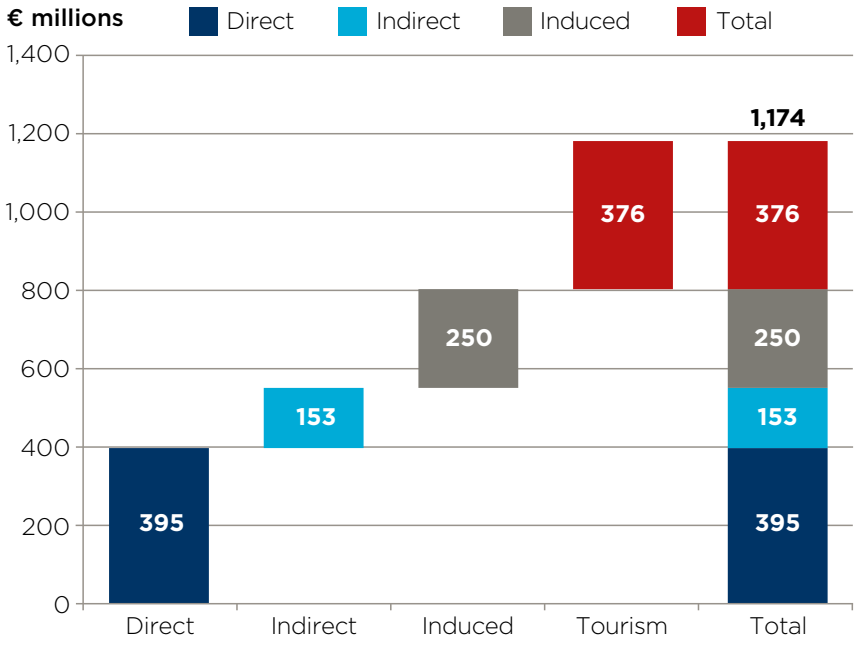
[28] The ticket price paid by each spectator is removed from this to avoid double-counting, and further information on how this spend is split between different sectors is sourced from Eurostat (2020) 'Average expenditure per trip by expenditure categories.'
[29] Because this methodology captures the additional spending of international visitors, it will be accurate for each country at the national level. But it will still over-estimate results at a European level, because it includes European nationals attending events in other European countries (whose spending is not additional to European countries collectively).

Fig. 32: The tourism impact of sporting events in the EU-27 and UK in 2019



Source: Oxford Economics

Fig. 33: The total contribution to GDP supported by sporting events in the EU-27 and UK in 2019



Source: Oxford Economics

5.1.5 Total impact

In total, motorcycle sporting events supported a €1.2 billion gross value added contribution to European GDP in 2019. This is the sum of the direct, indirect, induced, and tourism impacts (Fig. 33), and represents a significant contribution to the economies of the EU-27 and UK.

The economic activity is spread throughout the European countries that host major motorcycle races, but the largest contribution to GDP is made in Spain at €236 million (or 20% of total around Europe). France and the United Kingdom accounted for the second (€202 million or 17%) and third (€152 million or 13%) largest GDP impacts, respectively.

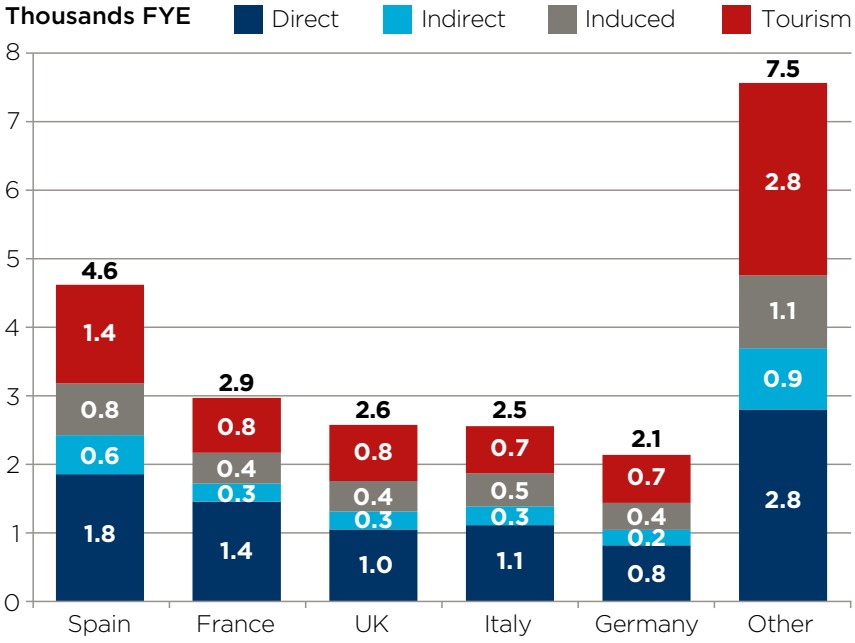
“Around 1.5 million international race spectators collectively spent €319 million attending race events across the European countries in 2019.”

We estimate that motorcycle sporting events supported 22,200 full year equivalent jobs across the EU-27 and UK in 2019. On top of the 9,000 people directly employed, the race events supported another 2,500 jobs across European countries through the supply chain impact, and 3,600 jobs through wage-induced consumption. The remaining 7,200 jobs were supported by international spectators' tourist spending.

Some 4,600 of these jobs were supported in Spain, or 21% of the total. This is the largest number of jobs supported in any of the European countries (Fig. 34). A further 2,900 jobs (or 13%) and 2,600 jobs (or 11%) were supported in France and the UK, respectively.

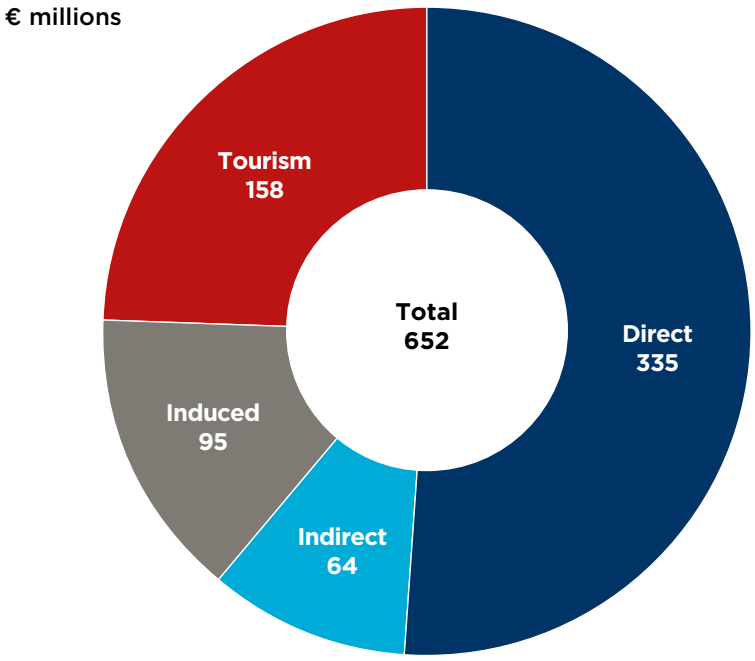
The motorcycle sporting events and the economic activity they generated supported €652 million in tax receipts across European countries in 2019. Of these, some €335 million or 51% of total was generated the firms organising the events and races themselves (Fig. 35). In total, the tax payments supported by race events form a sizeable contribution to authorities that could, for example, fund the annual salaries of 21,500 new primary school teachers in European countries.[30]

Fig. 34: The total employment supported by sporting events in the EU-27 and UK in 2019, by country



Source: Oxford Economics

Fig. 35: The total tax revenues supported by sporting events in the EU-27 and UK in 2019, by country



Source: Oxford Economics

[30] This is calculated using the average salary for a starting primary school teacher from the EU-27 and UK countries from OECD (2020) 'Teachers' salaries'

5.2 PROMOTIONAL EVENTS

Trade fairs and OEM-organised events are highly important to the L-category sector in Europe. The events facilitate economic activity as they bring together manufacturers and industry professionals, media, and potential customers.

Motorcycle trade fairs across the EU-27 and UK attracted some 1.9 million visitors in 2019. This covers the 20 events shown in Table 1.[31] Italy had the highest number of trade fair attendees in 2019 (Fig. 36). It also has the largest number of registered motorcycles and mopeds in Europe at 8.7 million, and is also where motorcycle manufacturers and traders sustain the largest economic contribution (Part A).

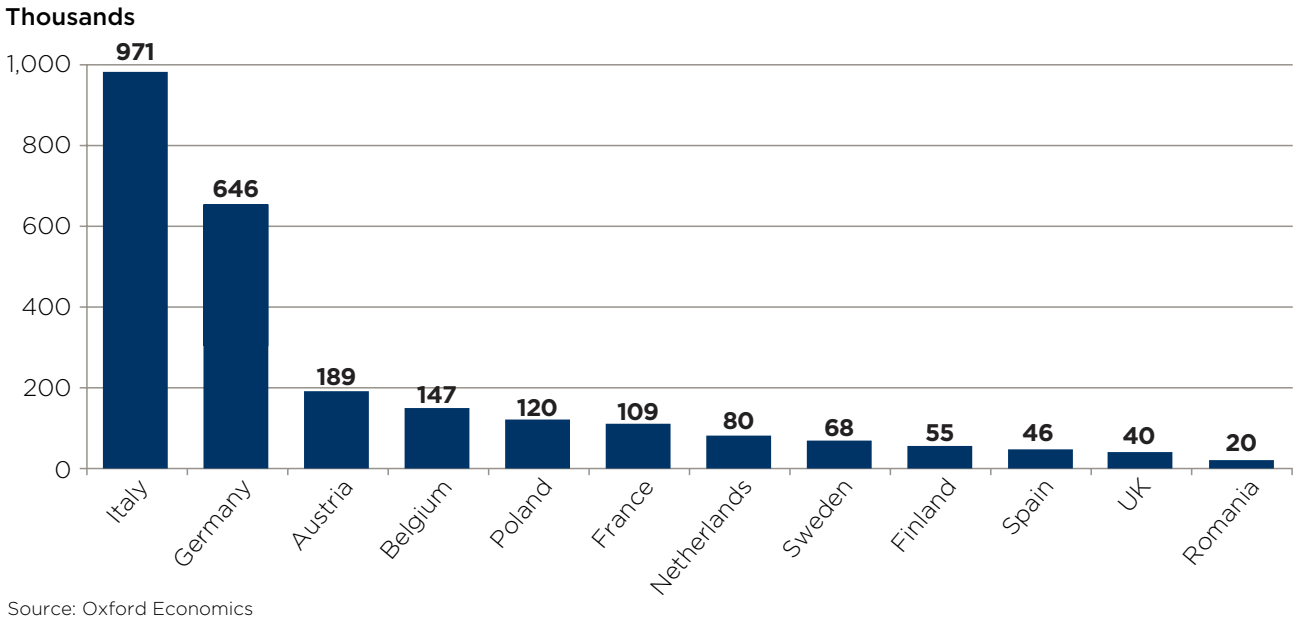
Events organised by OEMs attracted 574,000 visitors to venues across the EU-27 and UK.[32] The average attendance at an OEM event was 11,000 people. Germany had the highest number of OEM event attendees at 347,000. The country also hosts a number of popular trade fairs including the Motorräder and biennial INTERMOT (2018) events, giving a total promotional event attendance of nearly 650,000 in 2019.

5.2.1 Direct impact

Promotional events across the EU-27 and UK directly generated a €74 million gross value added contribution to GDP in 2019. Some €67 million of this total was generated by trade fairs, with the remaining €7 million created by OEM events. An estimated 1,100 full year equivalent workers were employed in organising and operating promotional events. This is based on the survey responses from multiple national associations and organisers, and can be split into the 90 workers employed annually to organise events and 74,200 temporary jobs during the events—an annual equivalent of 1,020 jobs (assuming a five-day event).

The promotional events and their visitors paid €63 million in taxes across European countries. Some €45 million of this total was in labour taxes, paid by organisers and direct employees, while ticket sales generated €14 million in VAT payments.

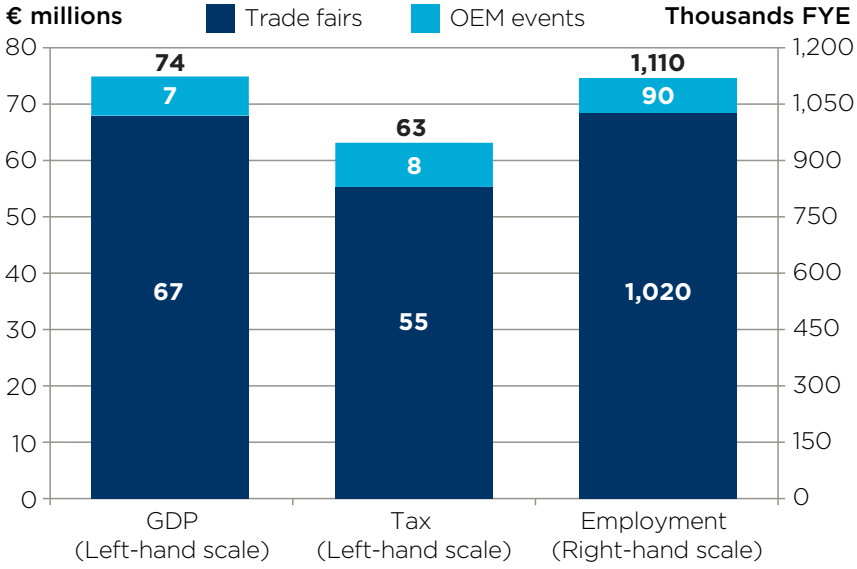
Fig. 36: Estimated visitors to trade fairs and OEM events by country in 2019



Source: Oxford Economics

[31] Attendance figures are provided by national associations and organisers.
[32] The sources for these numbers are ACEM, ANCMA, ANESDOR, Arge2Rad, BMW, Ducati, FEBIAC, Harley Davidson, Honda, IVM, KTM, MCN, MCRF, PZM, SMAEB, and TKL. It is assumed that one-third of the 442,000 visitors that attended the Brussels Motor Show were there for motorcycles, equating to 147,000.

Fig. 37: The direct impact of promotional events in the EU-27 and UK in 2019



Source: Oxford Economics

5.2.2 Indirect impact

The organisers of promotional events are estimated to have purchased €52 million of inputs of goods and services in 2019 to put on the events. Based on the survey responses, the average procurement spend per event was €2.4 million for trade fairs and €397,000 for OEM events. This expenditure stimulates further economic activity along the organisers' supply chains.[33]

The organisers' procurement spend stimulated a €57 million gross value added contribution to GDP along their European supply chain. Of this, the largest contribution was to Italian GDP (33% of the total), followed by German GDP (29% of the total). Some 760 jobs and €27 million in tax receipts were also supported along the events' supply chains.

5.2.3 Induced impact

Organisers running promotional events in Europe paid an estimated €31 million in wages in 2019.[34] The wage-financed spending of staff, along with those employed along the events' supply chain, stimulated a €37 million gross value added contribution to GDP and 380 jobs across the EU-27 and UK. It also supported a further €13 million in tax receipts.

5.2.4 Tourism impact

Spending by visitors to promotional events stimulates economic activity in tourist facing industries (transport, food serving, and accommodation services, etc) and along their supply chains. Survey evidence from trade fair organisers suggests the average visitor spent €1,000 per trip.[35] With 34% of visitors to trade fairs travelling from abroad to attend the events (based on multiple survey responses), this represents significant additional spending in the host countries totalling €651 million from the 651,000 international visitors.

Survey evidence from the OEMs suggests the vast majority (96.5%) of attendees at events they organise were from the host country. We therefore estimate international attendees to OEM-organised events spent around €3 million during their visits.

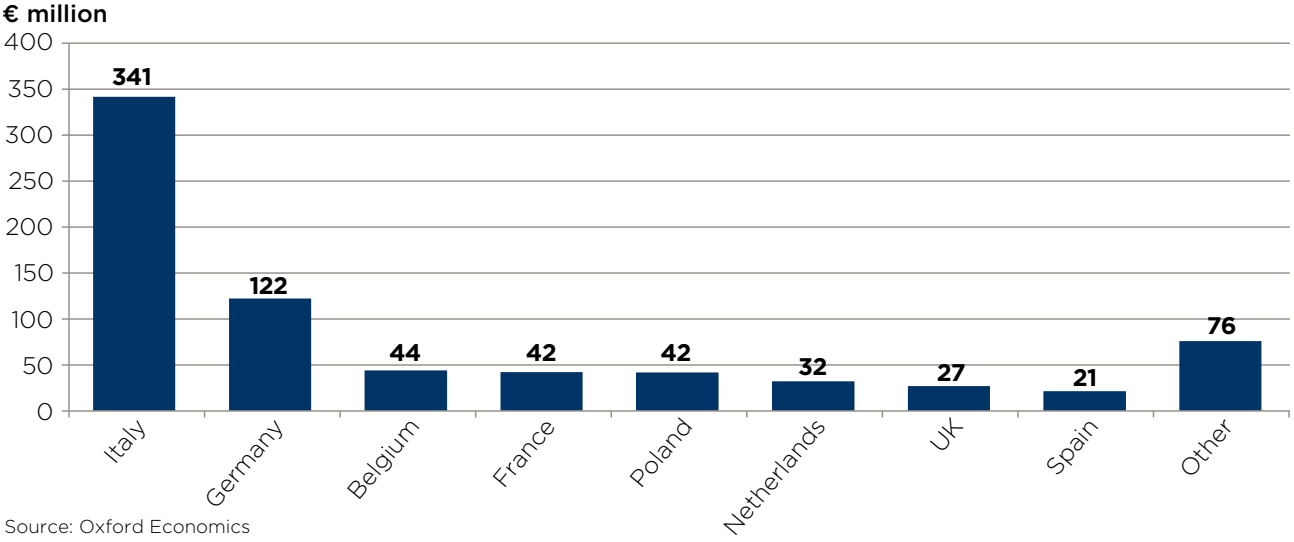
The spending of international visitors to promotional events sustained a sizeable economic impact. It supported a €746 million gross value added contribution to European GDP. Some 46% of this total contribution was made in Italy, with a further 16% in Germany (Fig. 38).

[33] This is the cost incurred by event organisers. There will be additional costs incurred by exhibitors that could not be quantified for the purpose of this analysis.

[34] This is estimated using average wages from the wider Administrative and Support Services sector, that includes event organisation, for each country from Eurostat (2020) 'Mean annual earnings by sex, age and economic activity.'

[35] This can be benchmarked against data from VisitBritain that shows visitors to trade events spent £840 (€949) per visit in 2018. Visit Britain, *Business visits & events,* (2020).

Fig. 38: The tourism impact of promotional events in the EU-27 and UK in 2019, gross value added contribution to GDP



Source: Oxford Economics

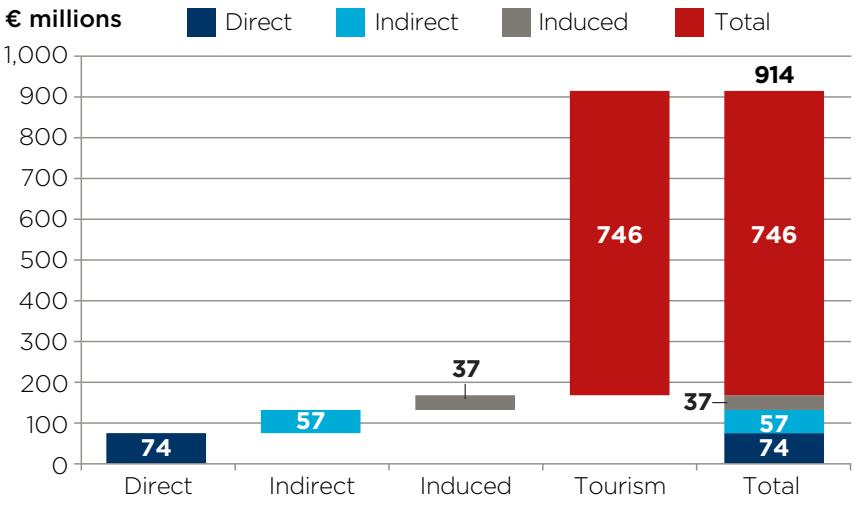
The incidental spending of international visitors also supported 13,900 FYE jobs. Due to the nature of the visitors' spending, the most jobs were supported in the accommodation and food services industry (33% of the total), followed by the wholesale and retail sector (26% of the total), and then the transportation sector (14% of the total).

Some €406 million in tax receipts were also supported through the tourism impact. This includes a total of €339 million in labour taxes (income tax and social security), along with €41 million in product taxes, such as VAT.

5.2.5 Total impact

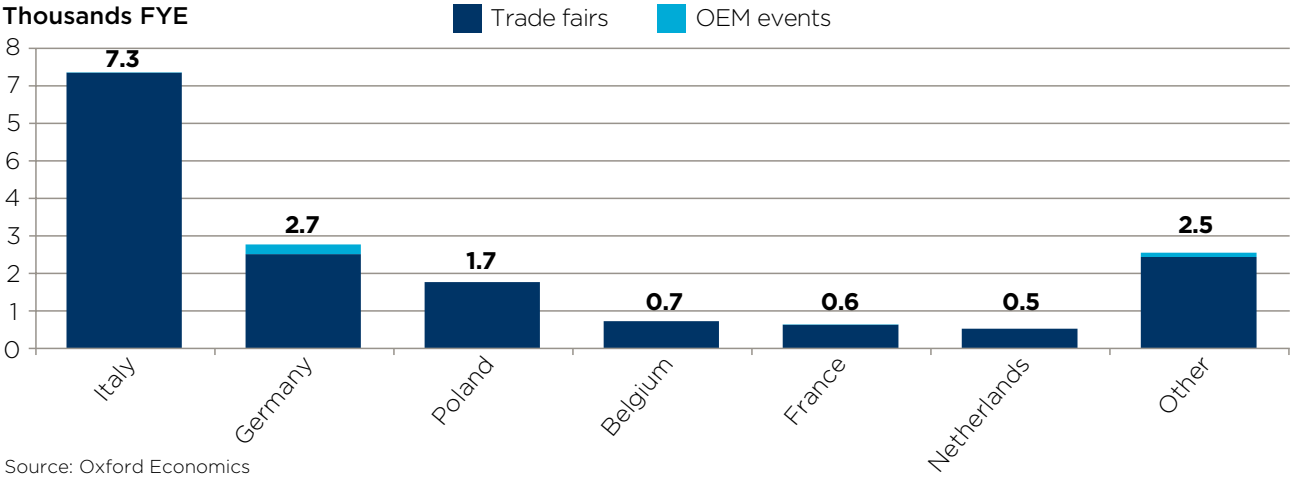
Promotional events supported a €914 million gross value added contribution to European GDP in 2019. The main component of this contribution is the tourism impact—economic activity stimulated by the significant spending of international visitors to trade fairs and other events (Fig. 39). The economic contribution will be greatest in Italy, which accounts for 44% of the total GDP contribution.

Fig. 39: The total contribution to GDP supported by promotional events in the EU-27 and UK in 2019



Source: Oxford Economics

Fig. 40: The total employment supported by promotional events in the EU-27 and UK in 2019, by country



Source: Oxford Economics

Trade events supported 16,200 full year equivalent jobs in total across European countries. On top of the 1,100 people directly employed, promotional events supported another 760 jobs through the supply chain impact, and 380 jobs through wage-induced consumption. But the majority of these jobs, some 13,900 in total, were supported by spending of international visitors through the tourism impact.

The largest share of the jobs supported by motorcycle trade fairs and OEM events were in Italy. Some 7,300 full year equivalent jobs or 45% of total occurred in this country (Fig. 40). A further 2,700 jobs were supported in Germany, while 1,700 jobs were supported in Poland, which hosted two motorcycle fairs in 2019.

Some €510 million in tax receipts were supported by motorcycle trade fairs and other events in 2019. To show the scale of these tax payments, this total would be sufficient to fund the annual salaries of 16,800 new primary school teachers across European countries.

5.3 THE TOTAL CONTRIBUTION OF MOTORCYCLE SPORTS AND EVENTS

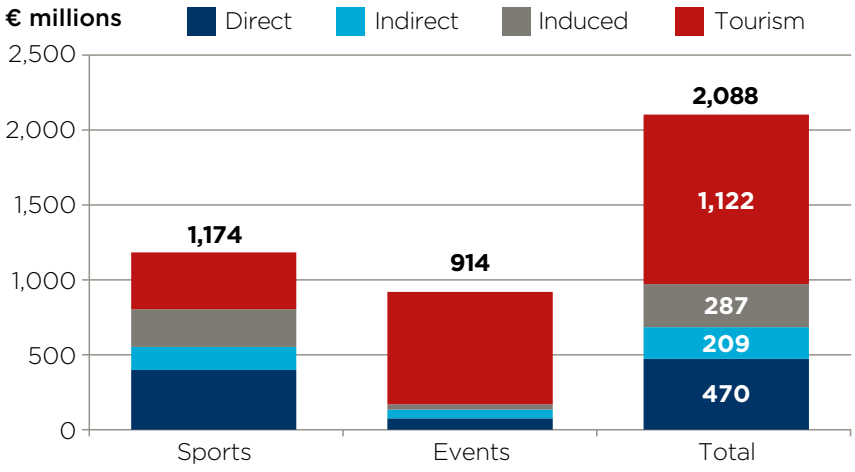
“Motorcycle sports and events together supported a €2.1 billion contribution to European GDP in 2019. This is primarily driven by the spending of international visitors that are attracted to European events.”

Together, motorcycle sports and events supported a €2.1 billion gross value added contribution to European GDP in 2019. To give an impression of scale, this is equivalent in size to 12% of Krakow’s economy, or 9% of Dortmund’s economy.

Split by type of event, sports made the largest contribution to European GDP. In 2019, they stimulated €1.2 billion in gross value added, or 57% of total (Fig. 41). The remaining €914 million was generated by trade fairs and other OEM-organised promotional events. Across both types of activity, it was international visitors’ tourist spending that generated the greatest impact.

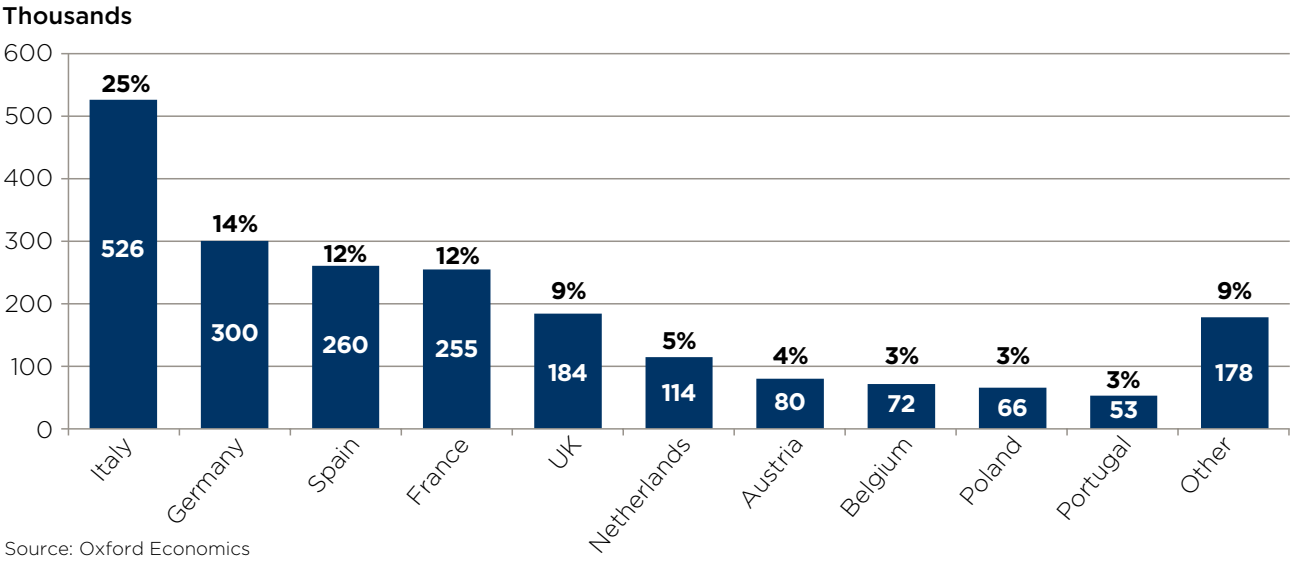
By country, the largest total contribution to GDP was generated in Italy at €526 million, or 25% of total (Fig. 42). The country hosted the largest trade fair (EICMA) as well as multiple races on the MotoGP, MXGP, and World Superbike calendars, among other events. Some €300 million in GDP or 14% of total was generated in Germany through a combination of trade, OEM-organised and sporting events. The €260 million contribution or 12% supported in Spain was driven primarily by sporting events.

Fig. 41: The total contribution to GDP supported by motorcycle sports and events in the EU-27 and UK in 2019



Source: Oxford Economics

Fig. 42: The total contribution to GDP supported by motorcycle sports and events in the EU-27 and UK in 2019, by country



Source: Oxford Economics

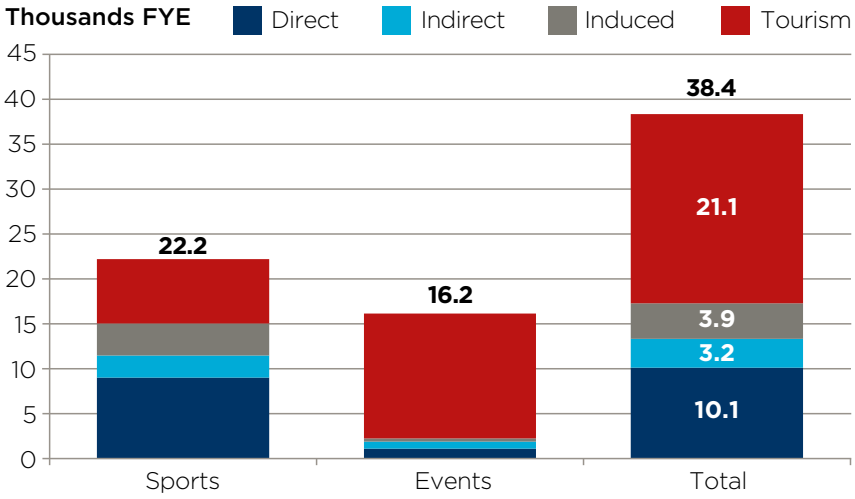
We estimate motorcycle sports and events supported 38,400 jobs across the EU-27 and UK in 2019. The annual equivalent of 10,100 staff were directly employed to organise and operate the events. A further 3,200 jobs were supported along the events' supply chain, while 3,900 jobs were supported by the wage-induced spending by the events' staff and those employed in their supply chain. A further 21,100 jobs were supported by the incidental spending of international visitors.

"The motorcycle sports and events sector supported over 38,000 full year equivalent jobs across the EU-27 and UK. This includes an estimated 10,100 that were directly employed in the organisation and running of the events."

By type of activity, motorcycle sporting events dominated the jobs supported, providing 22,200 full year equivalent roles or 58%. Trade fairs and other OEM-organised promotional events supported the remaining 16,200 jobs.

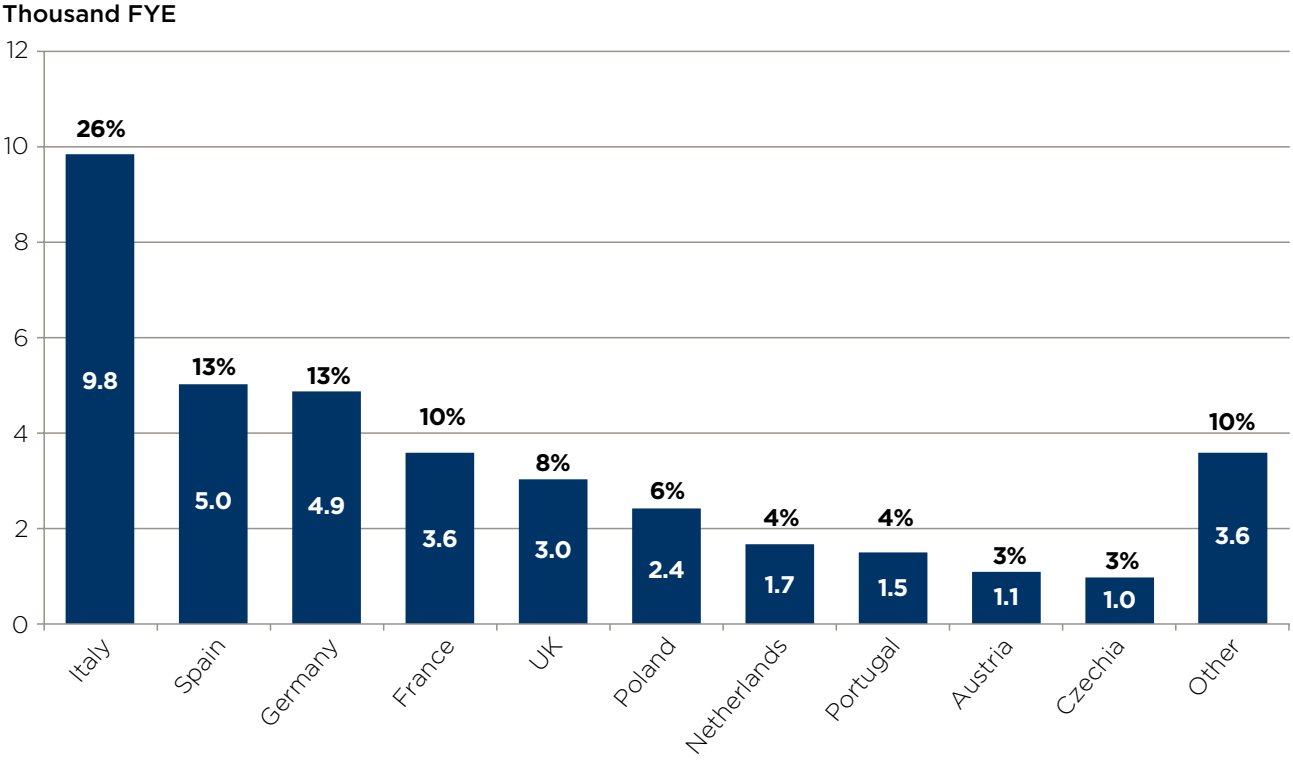
Some 9,800 of these jobs or 26% were supported in Italy, the most of any country (Fig. 44). However, the geographic spread of motorcycle sports, trade fairs and other OEM promotional events meant that at least 1,000 jobs were supported in 10 European countries.

Fig. 43: The total employment supported by motorcycle sports and events in the EU-27 and UK in 2019



Source: Oxford Economics

Fig. 44: The total employment supported by motorcycle sports and events in the EU-27 and UK in 2019, by country

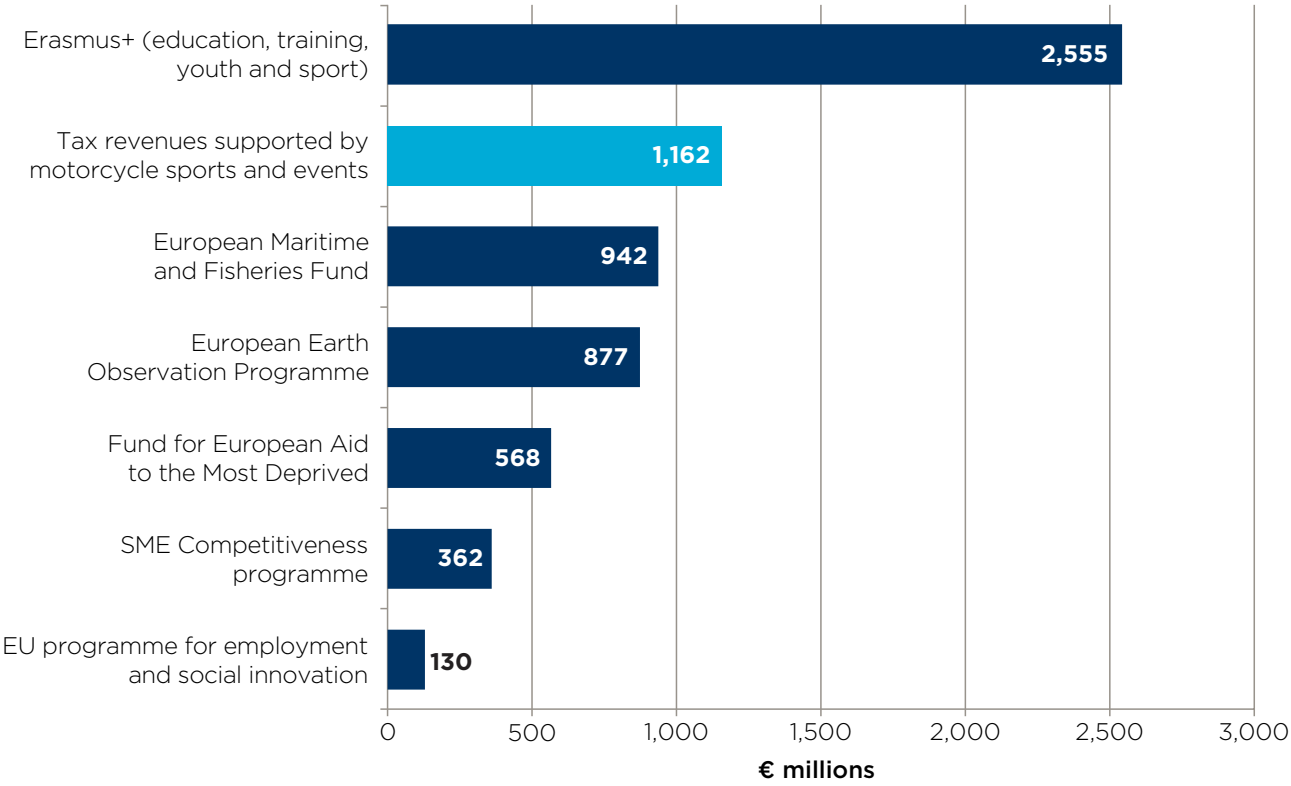


Source: Oxford Economics

Motorcycle sports and events supported tax payments of €1.2 billion. Of this, €652 million of the tax receipts were supported by sporting events, compared to €510 million by trade fairs and other promotional events. To give a sense of scale, this amount of fiscal revenue would be more than sufficient to finance the EU's spending on both *the Fund for European Aid to the Most Deprived* and the *SME Competitiveness programme* in 2019 (Fig. 45).[36] Alternatively, it would have been sufficient to pay the annual wages of 38,200 new primary school teachers across the EU-27 and UK.

"Motorcycle sports and events supported €1.2 billion in tax receipts. This amount of fiscal revenue would be more than sufficient to finance the EU's spending on both the Fund for European Aid to the Most Deprived and the SME Competitiveness programme."

Fig. 45: The total tax payments supported by motorcycle sports and events versus EU budget spending in 2019 by programme



Source: European Commission, Oxford Economics

[36] European Commission, *EU Budget 2014-2020 Programmes' Performance Overview,* (2019).


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6. ACCESSORIES FOR MOTORCYCLISTS

This chapter looks at the economic impact of the manufacture and distribution of helmets, clothing, and other accessories for motorcyclists (such as protective boots and gloves) across the EU-27 and UK.[37] The impacts shown are separate to, and completely additional to, those of motorcycle manufacturers and traders, set out earlier in Chapter 3. As for the independent motorcycle sale and repair industry, but unlike the motorcycle manufacturing industry, small and medium-sized enterprises (SMEs) account for a significant share of these activities.

"Europe is home to a large number of SMEs that specialise in the manufacturing of helmets, clothing, and other accessories for motorcyclists, such as protective boots and gloves."

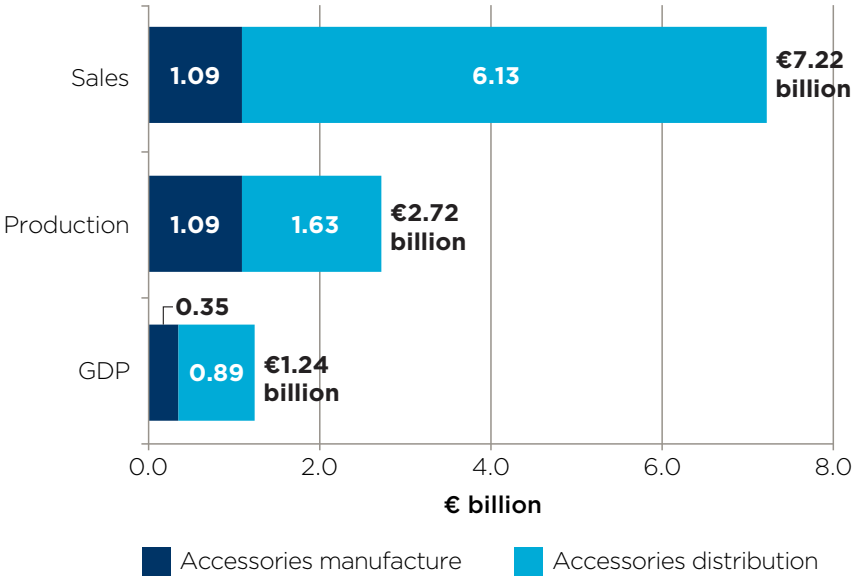
6.1 DIRECT ECONOMIC IMPACTS OF THE ACCESSORIES SECTOR

In 2019, manufacturers of motorcyclists' accessories based in Europe produced and sold almost €1.1 billion worth of products (see Fig. 46). This was associated with a direct contribution to European GDP of just under €0.4 billion, after deducting the cost of goods and services purchased from their suppliers.

As the chart also shows, the turnover of wholesalers and retailers of goods of this type, including imported accessories, is estimated to have been €6.1 billion in that year, including transactions between those distributors. The gross margin on their sale of trading stock—i.e. their production—was €1.6 billion, associated with a €0.9 billion direct GDP impact.

The total direct GDP impact of the entire accessories manufacture and distribution sector, in the EU-27 and UK, was therefore more than €1.2 billion, with total production put at €2.7 billion in 2019, and total sales across all of these businesses at €7.2 billion. The total employment supported by this activity was 24,680 in terms of headcount (see Fig. 47), with most of those jobs amongst wholesalers and retailers, and 4,450 of them in the manufacturing industry.

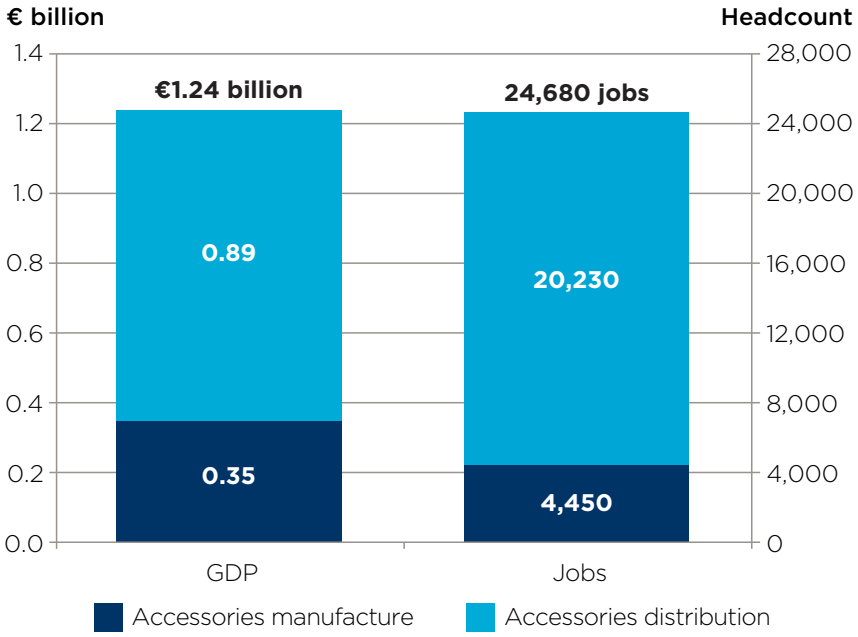
Fig. 46: Sales, production, and GDP in 2019: accessories sector



Source: Oxford Economics

[37] Estimating the values in this section involved a high degree of modelling, as little hard data is available at the level of detail concerned (as detailed in the Technical Report). This is especially true for the accessories distribution activities. The figures should therefore be treated with a degree of caution.

Fig. 47: GDP and employment in 2019: accessories sector

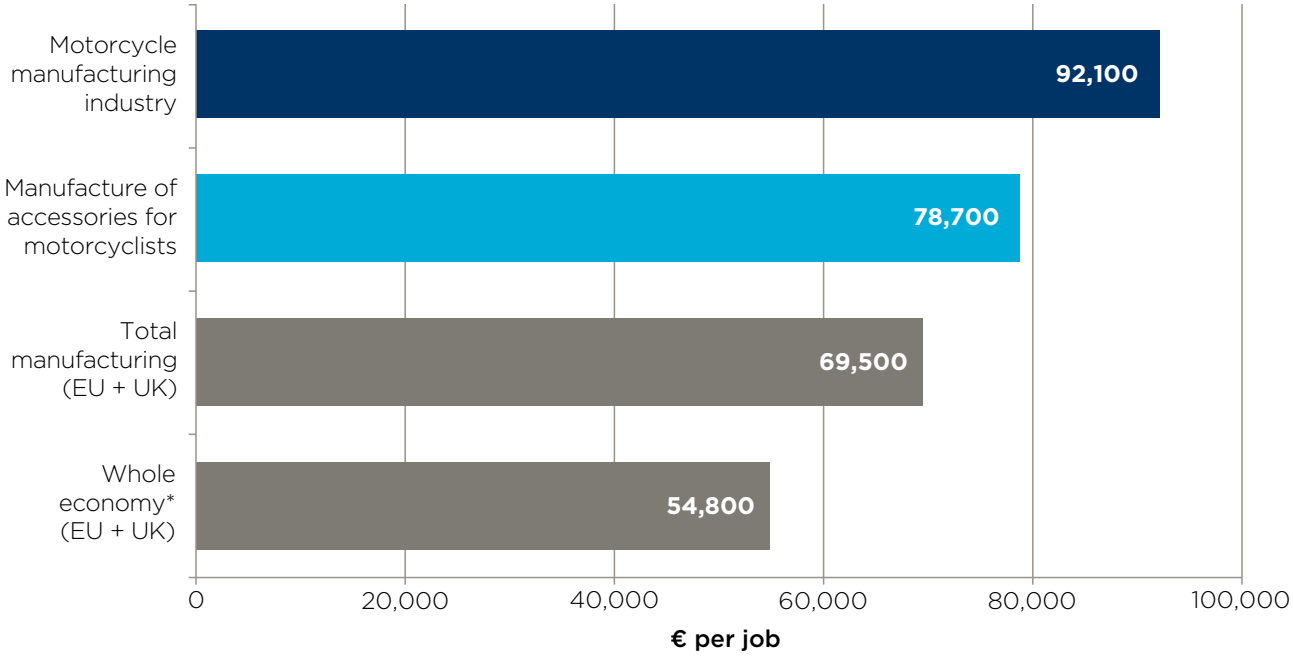


Source: Oxford Economics

Looking at the manufacture of these accessories specifically, GDP per job is not as high as in the motorcycle manufacturing industry, but is higher than the European economy average—and above the average across all European manufacturing (see Fig. 48). The sector's products include high-quality leather items and safety gear, many of a specialist nature, and they are consequently valued highly in the marketplace.

In keeping with wholesale and retail activities more broadly, accessories distribution is more labour-intensive in nature, and therefore supports many more jobs per € of GDP than the manufacturing part of the European sector.

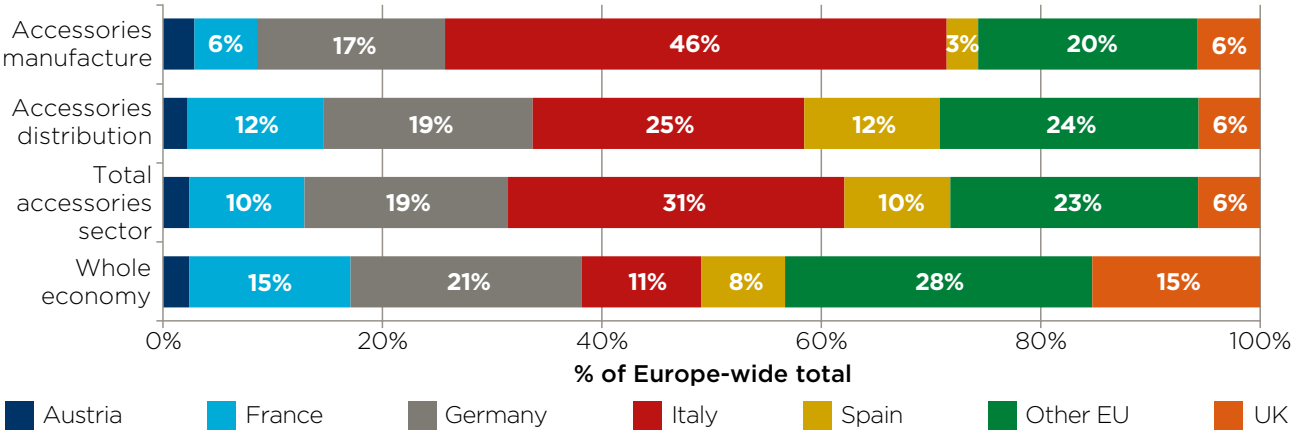
Fig. 48: GDP per job in context: European manufacturing activities



Source: Oxford Economics, Eurostat

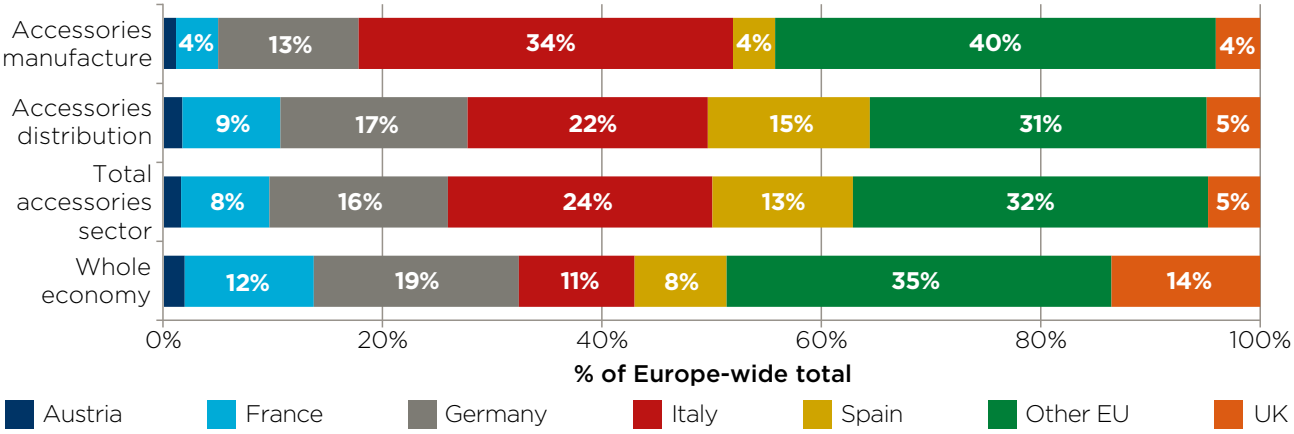
*Excluding rent and other real estate activity

Fig. 49: Direct GDP by country: accessories sector



Source: Oxford Economics

Fig. 50: Direct employment by country: accessories sector

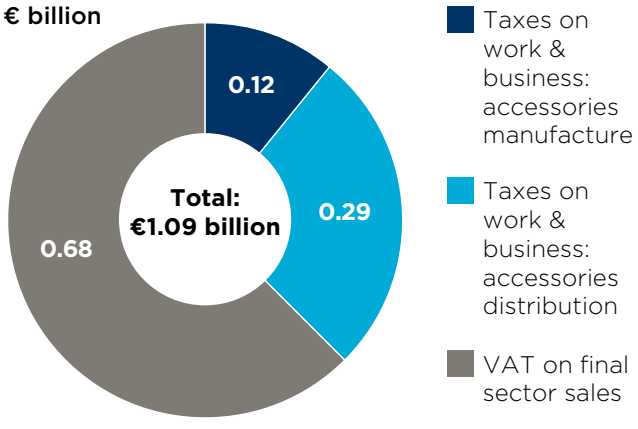


Source: Oxford Economics

The geographical distribution of these activities is shown in Fig. 49 for GDP, and in Fig. 50 for employment. Italy accounts for almost half of relevant manufacturing GDP, and for around a third of relevant manufacturing jobs. This is also the most important country in the case of accessories distribution, on the basis modelled.

The tax revenue generated directly by the sector in 2019 is estimated at €1.1 billion (see Fig. 51), including €680 million of VAT on sales of these products to final EU customers. Some €290 million of taxation was paid by workers and businesses in the accessories distribution sub-sector, and €120 million by those in the accessories manufacturing sub-sector.

Fig. 51: Direct tax impacts: accessories sector



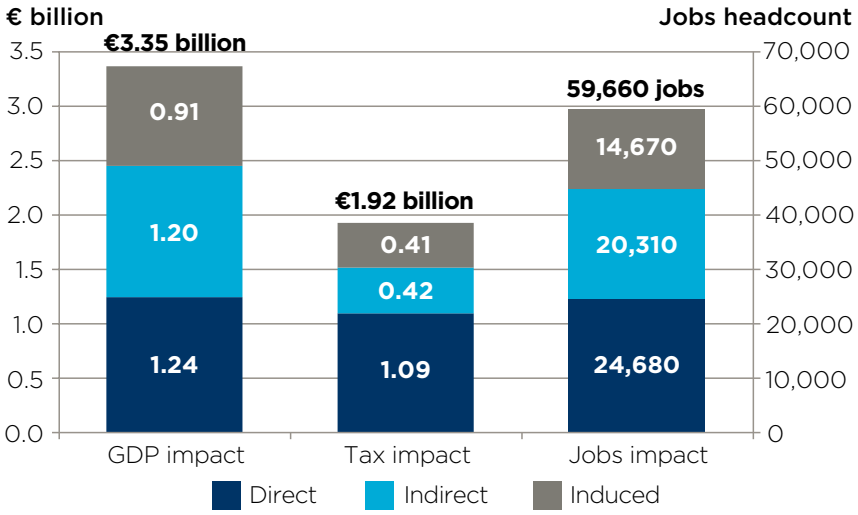
Source: Oxford Economics

6.2 TOTAL ECONOMIC IMPACTS OF THE ACCESSORIES SECTOR

Taking supply chain linkages and wage-funded spending into account, as well as the direct activity described above, the total GDP impact of European manufacturers and distributors of motorcyclists' accessories is estimated to have been over €3.3 billion in 2019. This supported almost 60,000 jobs and over €1.9 billion of tax revenues.

The separate contributions of the direct, indirect and induced channels are shown in Fig. 52, while Fig. 53 shows the impacts by country of production and taxpayer. In this case, Italy accounts for approaching a third of the total Europe-wide effects.

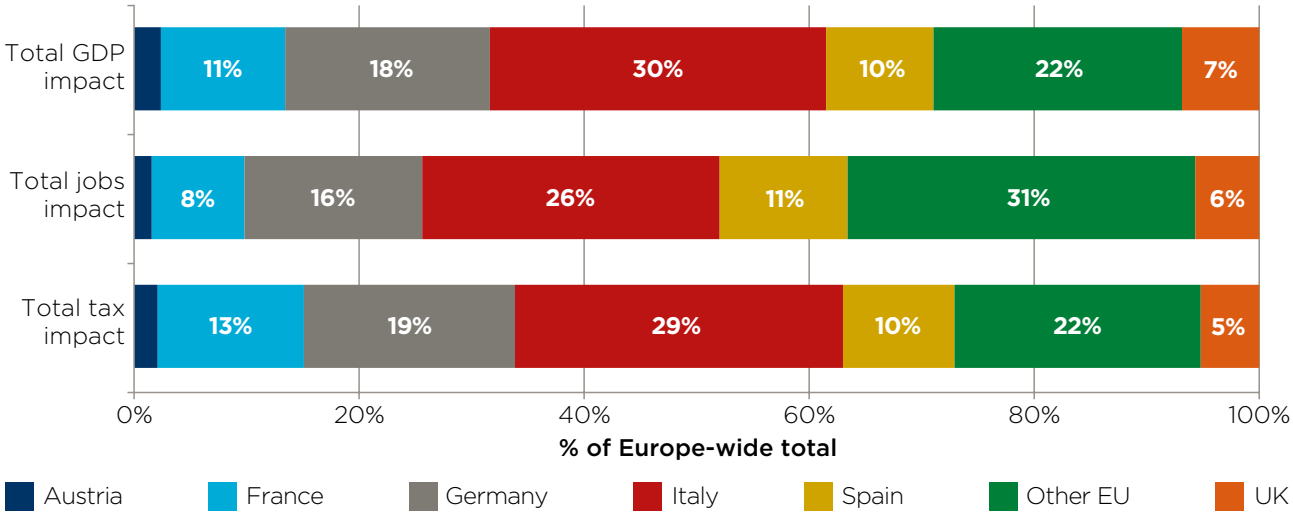
Fig. 52: Total economic impacts by channel: accessories sector



Source: Oxford Economics

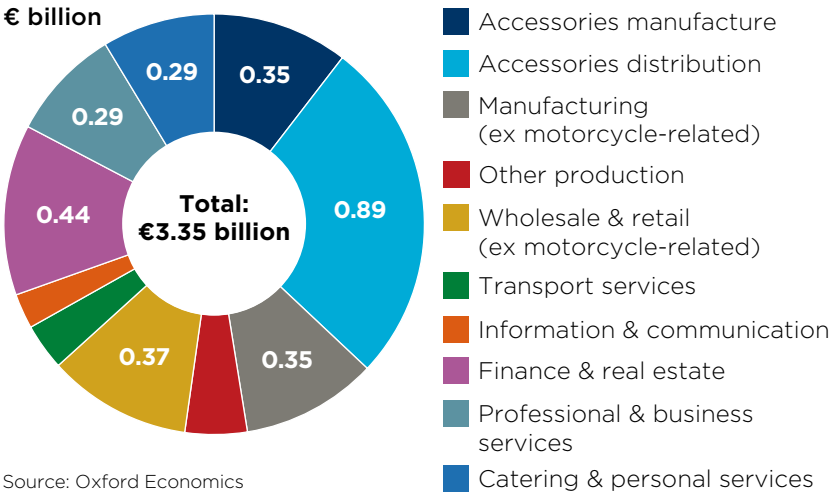
> **"The production and distribution of motorcycle accessories (e.g. helmets, clothing, protective boots, and gloves) had a total GDP impact of over €3.3 billion in 2019."**

Fig. 53: Total economic impacts by country: accessories sector



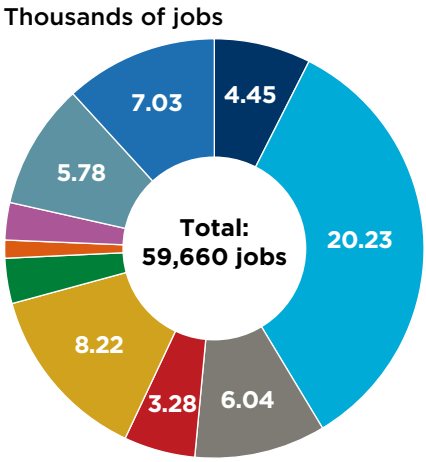
Source: Oxford Economics

Fig. 54: Total GDP impact by industry: accessories sector



Source: Oxford Economics

Fig. 55: Total employment impact by industry: accessories sector



Source: Oxford Economics

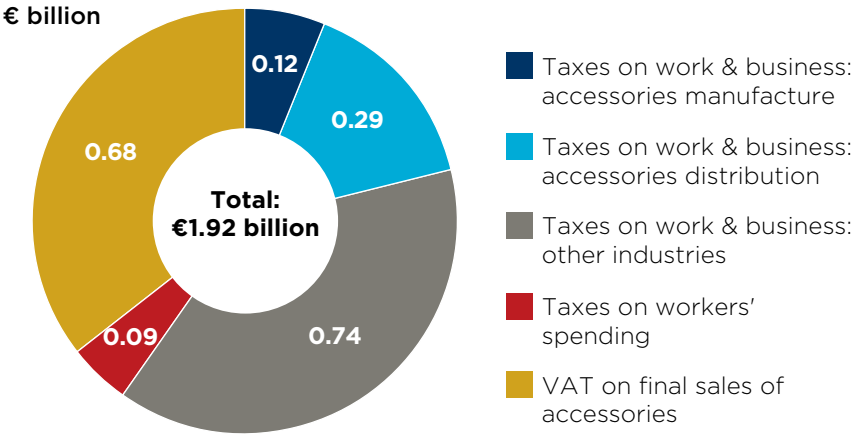
By industry of supplier, the accessories sector itself accounts for just over a third of the total GDP impact (see Fig. 54). The remainder is spread widely by activity type, with five broad industry groups—other manufacturing, other wholesale and retail, finance, and real estate, professional and business services, and catering and personal services—each accounting for between 9% and 13% of the total GDP contribution.

Associated with this, just over 40% of the jobs supported in one way or another by the accessories sector are in that sector itself, mostly in wholesale and retail (see Fig. 55). Other retail and wholesale activities (14% of all employment), and catering and personal services (12%), are the next most important job providers.

Some 35% of the total tax impact of €1.9 billion is accounted for by VAT on final sales of accessories to EU consumers, with taxes on work and business in the accessories sector accounting for broadly 20% (see Fig. 56). The remainder is accounted for by taxes on work and business in the indirect and induced channels (40%), and taxes on the consumer spending of workers in the accessories and supplying industries (5%).

"In 2019, companies operating in the production and distribution of motorcycle accessories supported over 59,000 full-time jobs and about €1.92 billion of tax revenues."

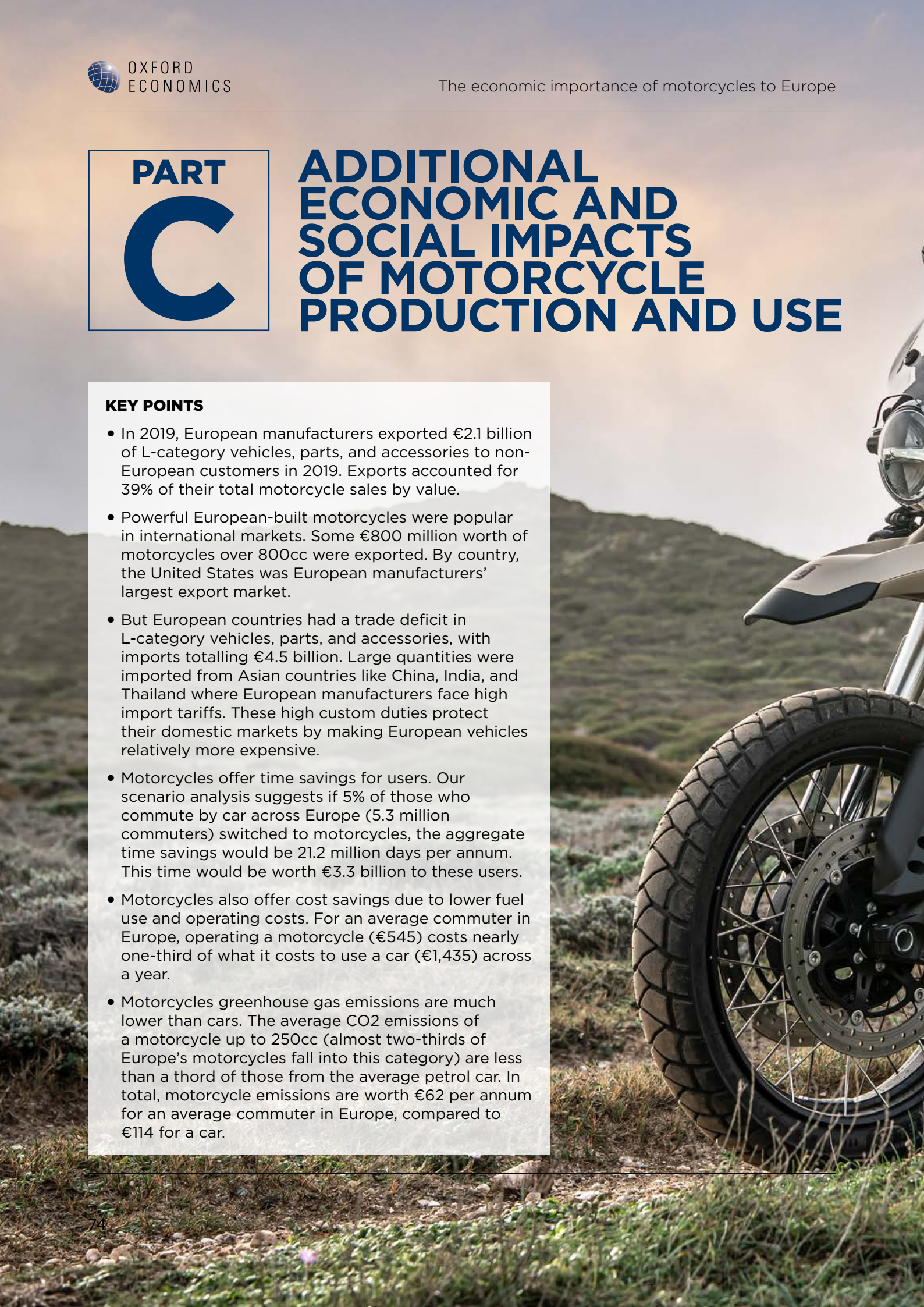
Fig. 56: Total tax impact by sector of taxpayer and type of tax



Source: Oxford Economics


SCHUBERTH

PART C ADDITIONAL ECONOMIC AND SOCIAL IMPACTS OF MOTORCYCLE PRODUCTION AND USE



KEY POINTS

- In 2019, European manufacturers exported €2.1 billion of L-category vehicles, parts, and accessories to non-European customers in 2019. Exports accounted for 39% of their total motorcycle sales by value.
- Powerful European-built motorcycles were popular in international markets. Some €800 million worth of motorcycles over 800cc were exported. By country, the United States was European manufacturers' largest export market.
- But European countries had a trade deficit in L-category vehicles, parts, and accessories, with imports totalling €4.5 billion. Large quantities were imported from Asian countries like China, India, and Thailand where European manufacturers face high import tariffs. These high custom duties protect their domestic markets by making European vehicles relatively more expensive.
- Motorcycles offer time savings for users. Our scenario analysis suggests if 5% of those who commute by car across Europe (5.3 million commuters) switched to motorcycles, the aggregate time savings would be 21.2 million days per annum. This time would be worth €3.3 billion to these users.
- Motorcycles also offer cost savings due to lower fuel use and operating costs. For an average commuter in Europe, operating a motorcycle (€545) costs nearly one-third of what it costs to use a car (€1,435) across a year.
- Motorcycles greenhouse gas emissions are much lower than cars. The average CO2 emissions of a motorcycle up to 250cc (almost two-thirds of Europe's motorcycles fall into this category) are less than a thord of those from the average petrol car. In total, motorcycle emissions are worth €62 per annum for an average commuter in Europe, compared to €114 for a car.


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ADDITIONAL ECONOMIC AND SOCIAL IMPACTS OF MOTORCYCLE PRODUCTION AND USE

39 million motorcycles available for use - **11%** of the total EU+UK motorized fleet.

5 million Europeans commute everyday by motorcycle.

1.4 million new motorcycles registered in 2019.

20.1 million days saved per year by Motorcyclists in the EU+UK compared to if they travelled by car.

On average, motorcycle journey times are around **30%** shorter than those in cars.

€545 vs €1,435

Annual cost of commuting by motorcycle nearly a third of commuting by car.

99 g/km: average CO_2 emissions of a two-wheeler on the streets – less than half of the 210 g/km emitted by the average car (petrol and diesel).

64 g/km: average CO_2 emissions of motorcycles up to 250 cc. **62%** of Europe's motorcycles fall into this category.

€62 Annual economic cost of motorcycle emissions for an average commuter in Europe, compared to € 114 for a car.





7. INTERNATIONAL TRADE ANALYSIS

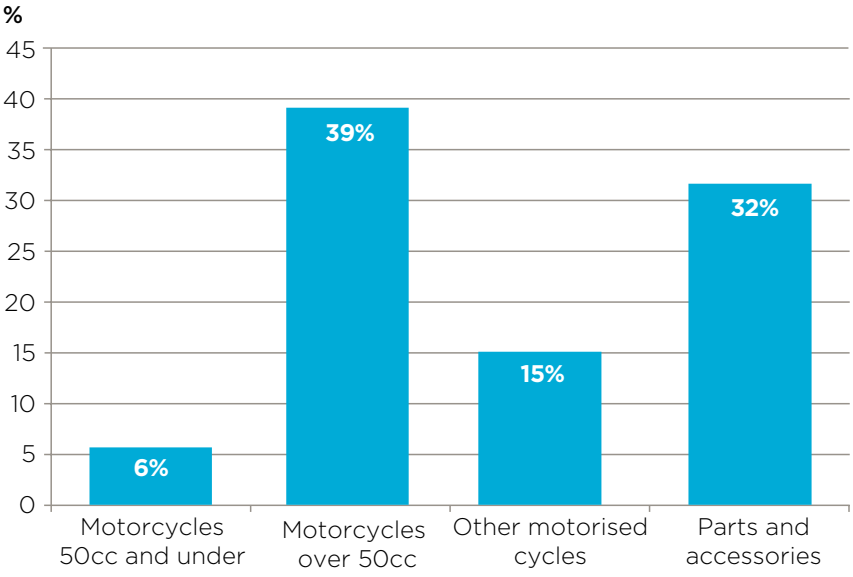
Europe plays a central role in the global trade of L-category vehicles. This chapter will outline the trade in L-category vehicles and their parts and components undertaken by the EU-27 members and the UK.[38] It will analyse which types of European-manufactured goods are being exported and to where; and which goods are being imported to Europe and from which countries they are purchased.

"In 2019, European manufacturers sold €1.6 billion worth of L-category vehicles, and €0.5 billion worth of parts and accessories to customers located outside of the EU and the UK."

Exports are important to the European L-category manufacturers. They sell a sizeable share of their products in international markets. By value, some 39% of the motorcycles produced in the European countries with an engine capacity greater than 50cc (cubic centimetres) are sold to the rest of the world (Fig. 57).[39] Likewise, 32% of the parts and accessories produced in the European countries were sold abroad. The terms of trade—in particular the custom duties paid by the manufacturers when selling products into international markets—are therefore highly important to the European L-category industry.

This chapter will outline the customs duties paid on L-category vehicles and their parts and accessories both in European countries and the rest of the world when they are traded. European manufacturers pay customs duties in destination markets as they export their vehicles, parts and components to the rest of the world, while tax revenues are raised in European countries as duties are paid on imported goods. The chapter will go to provide estimates for the impact that this trade has on tax receipts, and outline the importance of the revenues to the European economy.

Fig. 57: EU-27 and UK exports share of total production value



Source: PRODCOM

[38] In this report the terms 'Europe' and 'European' are used as short-hand for the combined EU-27 and UK, rather than the entire continent.
[39] The exports' share of total production value is calculated using data for 2018 from the EU PRODCOM database.

This chapter will use data from the EU COMEXT database to detail the trade of L-category vehicles, and tax rates from the World Trade Organisation (WTO) to estimate the tax receipts their trade supports. These sources use Harmonised System (HS) classification codes. Motorcycles and other motorised cycles are defined under HS code 8711. The HS codes do not align exactly with the EU's L-category classification, but Fig. 58 outlines the codes used in this analysis and how they relate to the L-category.

Electric L-category vehicles are classified under HS code 871160. This analysis includes 'electric motorcycles' which are classified under HS code 87116090. This category includes all electric-powered motorcycles, mopeds, and scooters. However, this analysis excludes other electric-powered L-category vehicles (bicycles, tricycles, and quadricycles), including those with pedal-assistance. These are classified under HS code 87116010. The reason for their omission is that many of the pedal-assisted vehicles do not meet the performance parameters for L-category vehicles.

Fig. 58: L-category vehicles

L-Category*		HS code	Description
	Light two-wheel powered vehicle (L1e)	871110	Motorcycles (including mopeds) less than 50cc
		871120	Motorcycles (including mopeds) and scooters between 50cc and 250cc
	Three-wheel moped (L2e)	871110	See above
		871120	See above
	Two-wheel motorcycle (L3e)	871110	See above
		871120	See above
		871130	Motorcycles between 250cc and 500cc
		871140	Motorcycles between 500cc and 800cc
		871150	Motorcycles over 800cc
	Two-wheel motorcycle with side-car (L4e)	871190	Other (which includes other cycles, tricycles and quadricycles and motorcycles with side-cards)
	Powered tricycle (L5e)		
	Quadricycle (L6e, L7e)		

*Electric motorcycles are classified under HS code 87116090

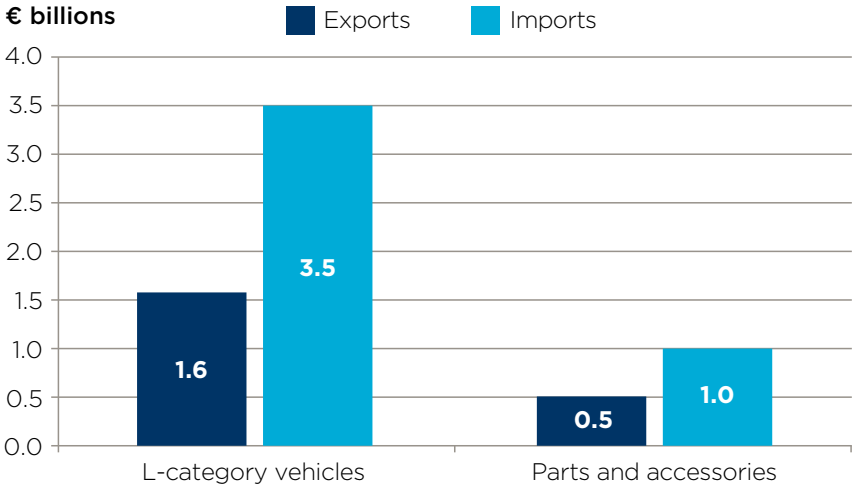
7.1 TOTAL EXPORTS, IMPORTS, AND TRADE BALANCES

As a bloc, European countries were a major trader in both L-category vehicles and their parts and accessories in 2019. In total, the EU and UK imported €3.5 billion worth of L-category vehicles across the year, and sold €1.6 billion worth of the vehicles to the rest of the world. This means that European countries were a net importer of the L-category vehicles to the value of €1.9 billion. The EU and UK imported €1.0 billion worth of L-category vehicle parts and accessories in 2019, while they exported an equivalent figure of €0.5 billion.[40]

Fig. 60, overleaf, splits out these exports and imports by detailed category, and outlines European countries' overall trade balance for each.

"Powerful European-built motorcycles are very popular in international markets. Some €800 million worth of motorcycles over 800cc were exported—equivalent to 51% of the total L-category vehicle exports."

Fig. 59: Total EU-27 and UK imports and exports of L-category vehicles, parts, and accessories in 2019



Source: EU COMTEXT

7.1.1 Trade in L-category vehicles

The majority of European countries' L-category vehicle exports in 2019 were traditional motorcycles. These are defined as L-category vehicles with 'reciprocating internal combustion engines, excluding scooters and vehicles with pedal-assistance, electric motors or side-cars'. They accounted for some 80% of its total L-category vehicle exports, by value.

Powerful European-manufactured motorcycles were particularly popular in international markets. European countries sold €800 million worth of motorcycles with an engine capacity greater than 800cc—equivalent to 51% of its total L-category exports by value (Fig. 60). Motorcycles with an engine capacity between 500cc and 800cc were the next most popular in foreign markets with €236 million exported (15% of the total).

European countries imported a wide variety of L-category vehicles. Traditional motorcycles with an engine capacity over 800cc were the most popular import by value, with €946 million purchased from the rest of the world (27% of the total). European countries also imported €853 million worth of electric motorcycles (24% of the total).

[40] The parts and accessories of motorcycles and other motorised cycles are defined under Harmonised System (HS) code 871410.

Fig. 60: Total EU-27 and UK exports and imports in 2019, by detailed category, € millions

Category		Exports		Imports		Trade Balance
Total L-category vehicles		**1,564**	**100%**	**3,533**	**100%**	**-1,969**
Scooters (50-250cc)		42	3%	200	6%	-158
Motorcycles (by engine capacity)	Less than 50cc	17	1%	158	4%	-141
	50-125cc	43	3%	211	6%	-168
	125-250cc	65	4%	86	2%	-21
	250-380cc	216	14%	132	4%	84
	380-500cc	56	4%	209	6%	-154
	500-800cc	236	15%	667	19%	-431
	More than 800cc	800	51%	946	27%	-146
Electric motorcycles		60	4%	853	24%	-793
Other		29	2%	71	2%	-41
Total parts and accessories		**539**	**100%**	**986**	**100%**	**-447**
Brakes		118	22%	112	11%	6
Gearbox		8	1%	68	7%	-60
Wheels		15	3%	73	7%	-58
Silencers and exhaust pipes		43	8%	56	6%	-14
Clutches		10	2%	43	4%	-34
Other		345	64%	633	64%	-288

Source: EU COMEXT

Overall, European countries were net importers of L-category vehicles in 2019. The gap between imports and exports was €793 million. European countries collectively were a net exporter of traditional motorcycles with an engine capacity between 250cc and 380cc, for which they had a trade balance of €84 million.

7.1.2 Trade in parts and accessories

European countries were a net importer of L-category vehicle parts and accessories. Together they were a major exporter of brakes in 2019—selling €118 million to foreign countries (more than the €112 million it imported). However, European countries were net importers of other parts and accessories. They imported €73 million worth of wheels and €68 million worth of gearboxes.


POLICE
Ofc. Roscoe
POLICE
Ofc. Lewis


THE COTTAGE
North Las Vegas
POLICE
Sgt. Walker

7.2 MAJOR MARKETS FOR EXPORTS AND IMPORTS

7.2.1 L-category vehicle exports

L-category vehicles manufactured in European countries are sold across the world. In total, some 63 countries purchased over €1 million worth of European L-category vehicles in 2019. The top 10 destination countries are shown in Fig. 61, below. Together the top 10 accounted for 75% of the European countries' L-category vehicle exports, by value.

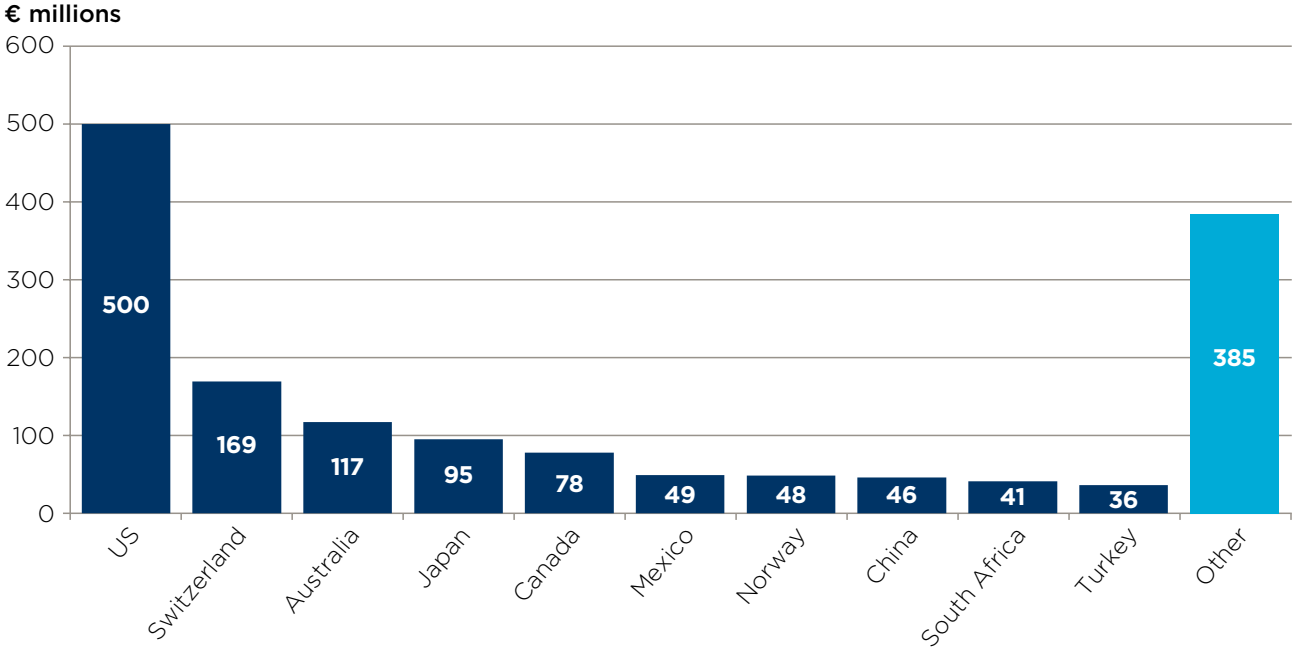
"The United States was the European manufacturers' largest export market, purchasing €500 million worth of L-category vehicles just in 2019."

The United States was the largest destination market for L-category vehicle exports in 2019. Some €500 million worth of European-manufactured L-category vehicles were purchased there. This was equivalent to 32% of the European countries' total value of L-category vehicle exports. A further €169 million worth of vehicles were exported to Switzerland—a member of the European Single Market—which is equivalent to 11% of the total value. Some €117 million worth of L-category vehicles were sold to the Australian market (7% of the total).

Powerful motorcycles are popular in European countries' key export markets. Some 48% of the European countries' L-category exports to the United States, by value, were traditional motorcycles with an engine capacity greater than 800cc (Fig. 62). In total, some 95% of exports to the United States were traditional motorcycles. This was similar to European countries' exports to Australia, some 98% of which were traditional motorcycles.

The most common export to Switzerland was also motorcycles with an engine capacity greater than 800cc. Traditional motorcycles accounted for 78% of the total exports to Switzerland, by value.

Fig. 61: Total EU-27 and UK L-category vehicle exports in 2019, by destination country



Source: EU COMTEXT

Fig. 62: Select destination countries for EU-27 and UK exports in 2019, split by category (%)

Country	Scooters (50-250cc)	Motorcycles (by engine capacity)						Electric motor-cycles	Other
		<50cc	50-250cc	250-500cc	380-500cc	500-800cc	>800cc		
United States	1	1	6	15	4	20	48	3	2
Switzerland	6	1	3	11	1	11	50	14	1
Australia	0	1	8	23	6	20	39	1	1

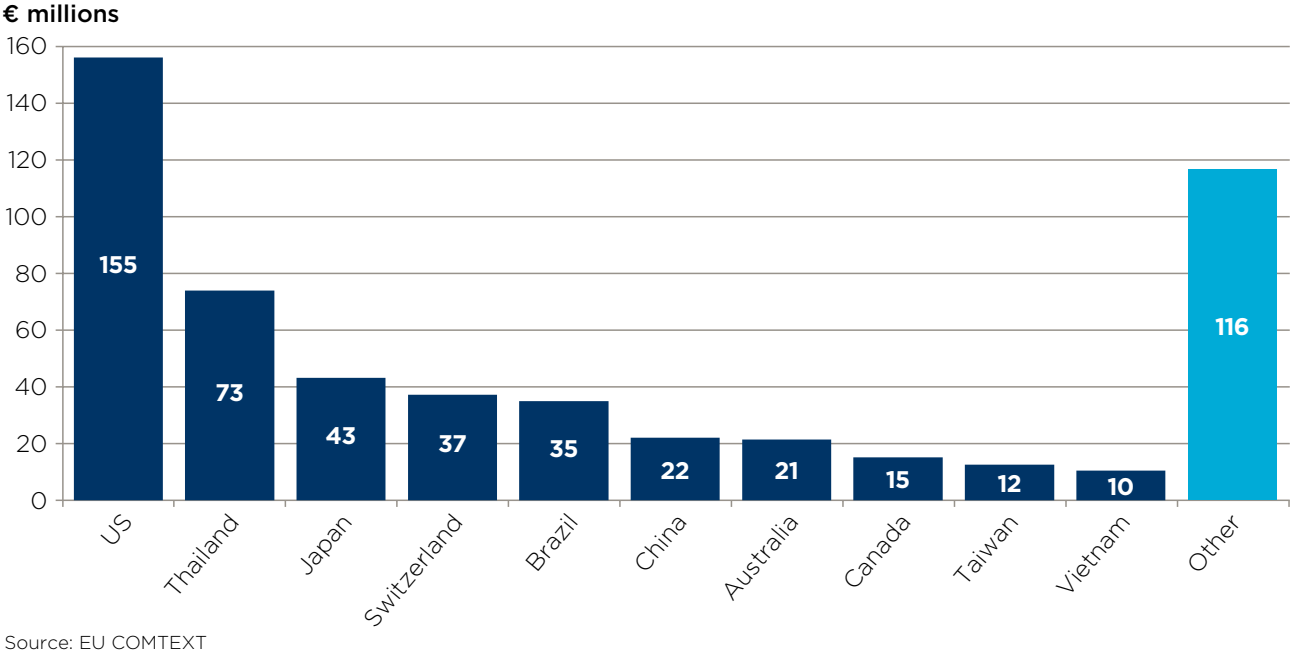
Source: EU COMEXT

7.2.2 Parts and accessories exports

European countries are an important supplier of L-category vehicle parts and accessories. Across the world, some 73 countries purchased at least €100,000 of L-category vehicle parts or accessories from the EU and UK in 2019. The largest destination market was the United States, which accounted for €155 million of the purchases (29% of the total). Thailand and Japan—both significant manufacturers of motorcycles—purchased €73 million (14% of the total) and €43 million (8%) worth of parts and accessories from the European countries, respectively.

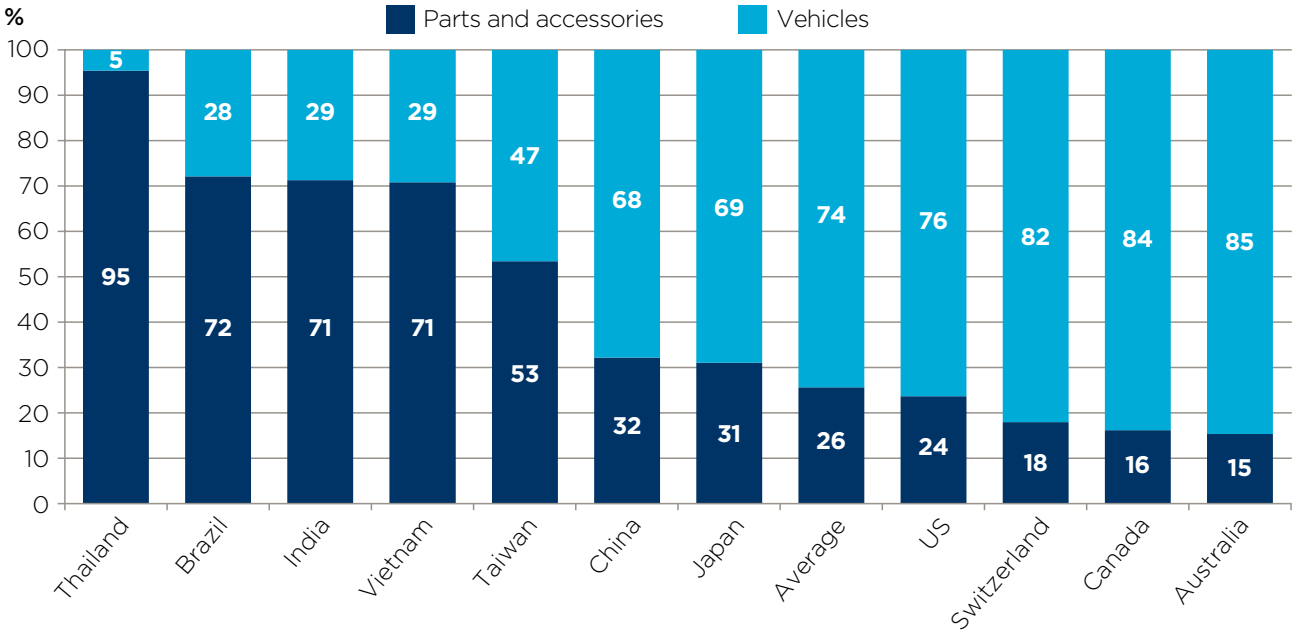
"Some 48% of EU exports of L-category vehicles to the US, by value, were motorcycles with an engine capacity greater than 800cc."

Fig. 63: Total EU-27 and UK L-category vehicle parts and accessories exports in 2019, by destination country



Source: EU COMTEXT

Fig.64: The composition of EU-27 and UK exports to select destination countries



Source: EU COMTEXT

European manufacturers export kits containing parts and components to be assembled into L-category vehicles in some foreign countries. These are called complete knock down (CKD) kits, whilst fully assembled L-category vehicles are known as completely built units (CBU).[41] Most countries classify (and tax) the CKD kits as vehicle parts and accessories (which require an import declaration for each component in the kit). The kits are therefore most commonly exported from Europe to countries with a high tariff burden and where the duties paid on complete vehicles are significantly higher than those paid on parts and components, such as India, Thailand, and Brazil (see section 7.4 for further discussion on tariff rates). This can be observed in the COMEXT data.

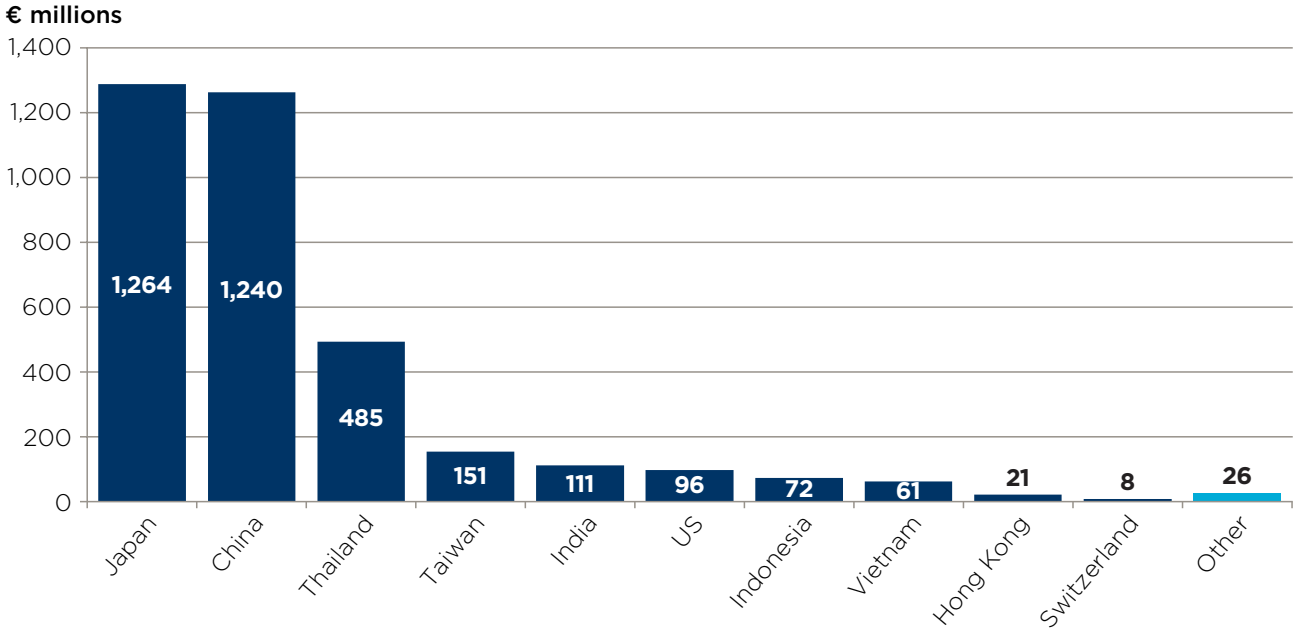
Parts and accessories account for the majority of the European countries' exports to India, Thailand, and Brazil. Some 95% of the total exports to Thailand (across both vehicles and their parts and accessories) were parts and accessories, which includes the CKD kits (Fig. 64). European countries exported €3.5 million worth of complete L-category vehicles to Thailand in 2019, but exported €73.2 million of parts and accessories. Multiple European manufacturers have opened facilities in the country. The equivalent figure for Brazil and India is 72% and 71% of total exports, respectively. To the contrary, European countries' exports to other foreign countries generally contain a much higher share of complete vehicles. The average export to a foreign country contains 74% vehicles and 26% parts and accessories, by value.

7.2.3 L-category vehicle imports

Most of the L-category vehicles imported into the European countries originate from Asia. China and Japan accounted for a large share of the vehicles imported into the EU and UK in 2019, with over €1.2 billion worth of sales each (Fig. 65). Together, this is equivalent to 71% of the total value of the European countries' L-category imports. A further €485 million worth of imported L-category vehicles came from Thailand (13% of the total).

[41] This chapter benefits from advice on the use of CKD kits from BMW.

Fig. 65: Total EU-27 and UK L-category vehicle imports in 2019, by country of origin



Source: EU COMTEXT

The European countries' L-category vehicle imports originated from a small concentration of countries. Only 17 countries sold over €1 million worth of L-category vehicles to Europe. The top 10 countries for European L-category vehicle imports account for €3.5 billion of the value of imported L-category vehicles, which was 99% of the total global value. Just €26 million worth of L-category vehicles were imported from countries outside of the top 10.

The three largest origin countries—China, Japan, and Thailand—collectively account for 85% of the total value of imported L-category vehicles. But each had a very different trade profile in terms of the types of L-category vehicles it imported to the European countries, as Fig. 66, shows.

Fig. 66: Select origin countries for EU-27 and UK imports in 2019, split by category (%)

Country	Scooters (50-250cc)	Motorcycles (by engine capacity)						Electric motor-cycles	Other
		<50cc	50-250cc	250-500cc	380-500cc	500-800cc	>800cc		
China	7	10	10	5	2	0	0	61	5
Japan	0	0	5	0	3	34	58	0	0
Thailand	2	0	11	1	22	38	26	0	0

Source: EU COMEXT

“Europe imports large quantities of two-wheelers, parts, and accessories from China, Japan, and Thailand.

At the same time, European exporters face high import tariffs in China and Thailand as well as India.”

The imports from China comprised largely of electric motorcycles. Some €751 million worth of electric-powered motorcycles were imported from China to European countries in 2019. This was equivalent to 61% of the total L-category vehicle imports from the country, by value. Less powerful vehicles—specifically motorcycles and scooters with engine capacities under 250cc—accounted for a further 27% of the total value.

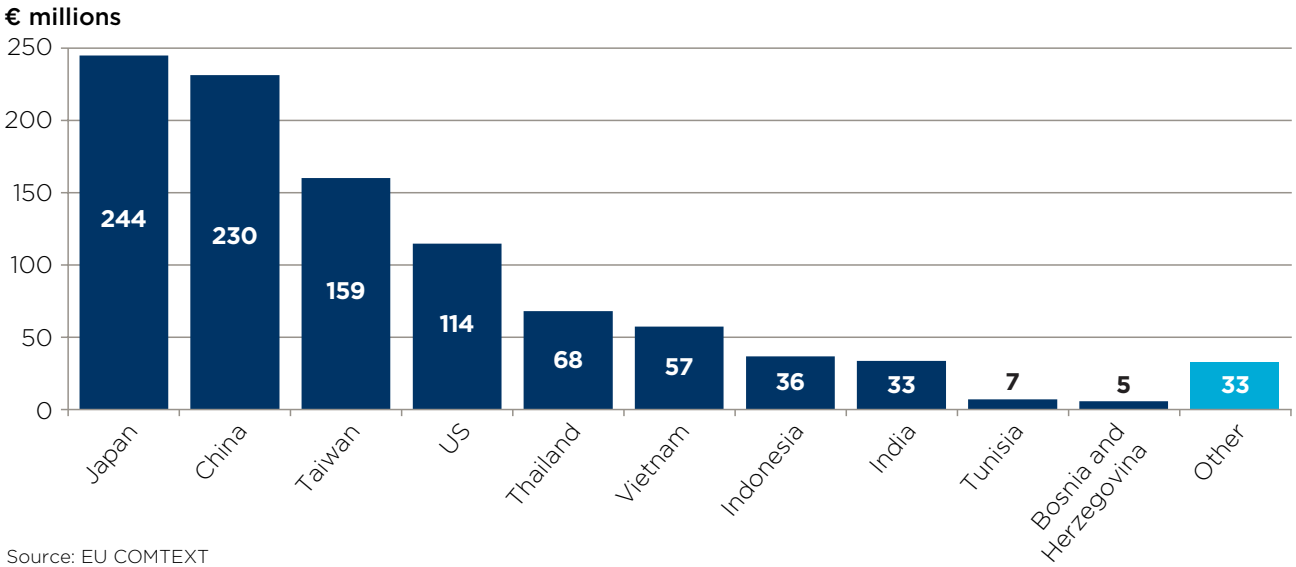
Imports from Japan comprised largely of powerful motorcycles. Some 92% of the total value of European countries’ L-category imports originating in Japan were motorcycles with an engine capacity greater than 500cc. Imports from Thailand were almost entirely traditional motorcycles—these accounted for 99.8% of imports originating in the country, by value.

7.2.4 Parts and accessories imports

A large share of European countries’ imports of L-category vehicle parts and accessories also came from Asia. Some 25% of the total import of parts and accessories, by value, originated from Japan, while 23% were purchased from China.

Japan was European countries’ largest external source of brakes, gearboxes and clutches, while China accounted for the most wheel and silencer/exhaust pipe imports. The top 10 countries, shown in Fig. 67, accounted for 97% of the global total for parts and accessories imported into European countries.

Fig. 67: Total EU-27 and UK L-category vehicle parts and accessories imports in 2019, by country of origin



Source: EU COMTEXT

7.3 COUNTRY PROFILES

This section will provide further detail on European countries' trade with selected countries. The data referenced are shown in Fig. 68,

- Argentina purchased €14.2 million worth of L-category vehicles from European countries in 2019. This consisted almost entirely of traditional motorcycles (€14.1 million). Motorcycles with an engine capacity greater than 800cc were the most popular, accounting for €8.9 million, or 63%, of the total value of exports to Argentina. The European countries together were a net exporter of both L-category vehicles and their parts and accessories to the country.
- Some €13.4 million worth of L-category vehicles from European countries were purchased in Brazil in 2019. These were largely traditional motorcycles with engine capacities between 250cc and 380cc (€5.7 million; 42% of the total) and over 800cc (€5.3 million; 40% of the total). The EU and UK also sold €34.6 million worth of L-category parts and accessories to Brazil, which includes CKD kits assembled in the country by European manufacturers. The European countries were a strong net exporter to the Brazil for both vehicles and their parts and accessories.
- Canada is an important export destination for European manufacturers. Some €77.8 million worth of L-category vehicles were exported to the country in 2019—making it the sixth largest foreign market for European L-category vehicles. Most of these exports, some €75.9 million, or 98%, were traditional motorcycles. Of these, the most purchased were motorcycles with an engine capacity over 800cc (€42.0 million; 54% of the total), followed by motorcycles with engines between 500cc and 800cc (€13.9 million; 18%). Meanwhile, European countries imported €4.4 million worth of L-category vehicles from Canada.

  Canada also purchased €15.0 million in vehicle parts and accessories from the EU and UK ranking it as the eighth largest foreign market for these products. Over half of this total spend—some €8.8 million—was European-manufactured brakes.
- European countries purchased €110.6 million worth of L-category vehicles from India in 2019—making it the sixth largest market for European L-category vehicle imports. Most of this—some €109.9 million, or 99% of the total—was traditional motorcycles.

  In return, India purchased €3.6 million worth of L-category vehicles from European countries. India has high import duties on L-category vehicles, which makes European-manufactured vehicles less competitive in the Indian market. Basic customs duty is 100% on motorcycle imports (see Section 7.4), and this is paid on top of the country's goods and services tax of 28%.[42] India did, however, purchase €9.0 million worth of parts and accessories from European countries. This includes CKD kits, which are subject to a lower import duty of between 15% and 25% depending on the level of completeness of the kit through the country's CKD duty regime.
- European countries imported €71.5 million worth of L-category vehicles from Indonesia—meaning the country was the ninth largest market for European L-category vehicle imports. Scooters were the most popular type of motorcycle purchased from Indonesia, at a total value of €33.0 million, equivalent to 46% of the total. European countries imported €36.3 million worth of parts and accessories in 2019. Together they were a net importer from Indonesia for both vehicles and their parts.

[42] Indian Central Board of Indirect Taxes and Customs: Indian Customs Electronic Commerce/Electronic Data Interchange Gateway (ICEGATE).


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R1200

- The EU and UK carried out limited trade in L-category vehicles with Malaysia in 2019. Together they exported €5.3 million worth of L-category vehicles and €5.0 million worth of parts and accessories. The European countries were a net exporter to Malaysia.
- European countries sold €10.5 million worth of L-category vehicles to the Philippines in 2019. Most of these sales, €10.1 million worth, were powerful motorcycles with an engine capacity greater than 500cc. European countries imported few L-category vehicles, parts, and accessories from the country.
- Thailand was the fourth largest source of European L-category imports in 2019. European countries together purchased nearly half-a-billion euros worth of L-category vehicles from the country. Some 98% of the total was traditional motorcycles, with €473 million worth purchased from Thailand. Many multinational manufacturers have established operations in the country. It is now the fifth largest manufacturer in the world.[43] Much of the production capacity is owned by Japanese manufacturers which benefit from low tariffs and eased distribution through the ASEAN Free Trade Area (AFTA) and the Japan-Thailand Economic Partnership Agreement (JTEPA), but several European producers also have facilities.

  The EU and UK exported €3.5 million worth of L-category vehicles to Thailand. These are subject to high import tariffs of 60%, so many European manufacturers therefore export CKD kits to the country to be assembled at their aforementioned sites. The country purchased €73.2 million of parts and accessories from the EU and UK, which includes the CKD kits. This is the second most of any country. In return, European countries imported €67.5 million of parts and accessories from Thailand.
- European countries purchased €60.6 million worth of L-category vehicles from Vietnam in 2019—the eighth most of any foreign country. However, only a small proportion of these were traditional motorcycles. The majority of the total, some €45.3 million (or 75%), was scooters. Vietnam purchased €4.3 million worth of L-category vehicles from European countries. Import tariffs on European vehicles are high—up to 75% depending on the vehicle's characteristics. European countries imported €57.0 million worth of parts and accessories from Vietnam.

Fig. 68: Total EU-27 and UK exports and imports from select countries in 2019, € millions

Country	L-category vehicles		Parts and accessories	
	Exports	Imports	Exports	Imports
Argentina	14.2	2.3	2.2	0.2
Brazil	13.4	0.8	34.6	0.3
Canada	77.8	4.4	15.0	2.9
India	3.6	110.6	9.0	33.4
Indonesia	1.4	71.5	2.0	36.3
Malaysia	5.3	0.8	5.0	2.2
Philippines	10.5	0.0	1.7	0.1
Thailand	3.5	485.2	73.2	67.5
Vietnam	4.3	60.6	10.4	57.0

Source: EU COMEXT

[43] Bank of Ayudhya, *Thailand Industry Outlook 2017-2019. Motorcycle Industry*, (2017).

7.4 CUSTOMS DUTIES

This section will outline the custom duties that are paid in the European countries when L-category vehicles, parts, and accessories are purchased from abroad, and the rates that European manufacturers' pay on exports when they enter foreign markets. It will estimate the tax revenues generated by the international trade of L-category vehicles. Our analysis will apply tax rates from the World Trade Organisation Organization (WTO) to the above figures for international trade sourced from the EU COMEXT database.[44]

7.4.1 Tariff rates

European countries have common custom tariffs that apply to their imports for each type of L-category vehicle and their parts and accessories, apart from those from countries with which they have made alternative trade agreements.[45] The default EU import tariff is:

- 8.0% on all motorcycles, mopeds and scooters with an engine capacity up to 250cc;
- 6.0% on all motorcycles with an engine capacity above 250cc;
- 6.0% on all electric-powered motorcycles and other cycles; and
- 3.7% on all parts and accessories.

The majority of the European countries' trading partners pay the default rates. Of the top 10 import origin countries shown in the previous section, only Vietnam, India, and Indonesia have negotiated different rates through the Generalised Scheme of Preferences (GSP) agreement (see Fig. 69).

"The majority of the European countries' trading partners pay the EU default custom rates. However, Vietnam, India, and Indonesia have negotiated more favourable rates through the Generalised Scheme of Preferences agreement."

Fig. 69: EU import tariffs for the top 10 import origin countries (%)

Country	Motorcycles up to 250cc	Motorcycles over 250cc	Electric-powered; other	Parts and accessories
China	8.0	6.0	6.0	3.7
Japan	8.0	6.0	6.0	3.7
Taiwan	8.0	6.0	6.0	3.7
Thailand	8.0	6.0	6.0	3.7
Vietnam	4.5	2.5	2.5	0.0
India	4.5	2.5	2.5	0.0
United States	8.0	6.0	6.0	3.7
Switzerland	8.0	6.0	6.0	3.7
Indonesia	4.5	2.5	2.5	0.0
Hong Kong	8.0	6.0	6.0	3.7

Source: WTO

[44] WTO Integrated Data Base (IDB). *Accessed via Tariff Download Facility, 23rd April 2020*
[45] These custom tariffs are still in place for the UK at time of writing, but will be subject to change through its withdrawal from the European Union.

The customs duties that European exporters have to pay in foreign markets are much more varied than the duties paid on goods entering European countries. In a small number of cases, some countries have bilateral deals with other countries that other member states do not have. In these cases, an average across the European countries is used.

Fig. 70, below, shows the import duties that European exporters pay in the top 10 destination markets for L-category vehicles. Many of the top export destinations like the United States and Switzerland have low import tariffs for both the vehicles and their parts and accessories. China is the exception to this. Like other Asian markets it has high import duties on European-manufactured vehicles, parts, and accessories. To show this, import tariffs for other notable trading partners are also featured in the figure below.

The significant difference between the duties that some countries charge on complete vehicles and those that they charge on their parts and accessories has given rise to the trade of CKD kits. India, Thailand, and Brazil are the main destination for European CKD kit exports. India charges 100% duty on complete vehicles, but only 15% duty on their parts. It has introduced a 'ladder tariff' as part of its CKD regime, so the custom duty rises to 25% for a kit "containing engine or gearbox or transmission mechanism in pre-assembled form but not mounted on a chassis or a body assembly".[46]

Fig. 70: Import tariffs for EU exports in the top 10 export destination countries (%)

Country	Motorcycles and scooters		Motorcycles			Electric-powered	Other	Parts and accessories
	up to 50cc	50cc–250cc	250cc–500cc	500cc–800cc	over 800cc			
United States	0.0	0.0	0.0	1.2	2.4	0.0	0.0	0.0
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Australia	0.0	0.0	0.0	0.0	0.0	4.64	4.64	1.61
Japan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Norway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	15.0	15.0	15.0	7.5	0.0	7.5	35.0	1.25
China	45.0	45.0	45.0	40.0	30.0	41.67	45.0	30.0
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turkey	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.8
Other selected countries out with the top 10 export destinations:								
India	100.0	100.0	100.0	100.0	100.0	100.0	100.0	15.0
Thailand	60.0	60.0	60.0	60.0	60.0	60.0	60.0	30.0
Vietnam	74.29	74.81	75.0	75.0	63.33	71.45	66.25	34.86
Brazil	20.0	20.0	20.0	20.0	20.0	20.0	20.0	16.0

Source: WTO

[46] Society of Indian Automobile Manufacturers. http://www.siam.in/economic-afairs.aspx?mpgid=16&pgid1=18&pgidtrail=20 *Accessed 26th June 2020.*

In Thailand, the customs duty on parts and accessories (30%) is half the duty charged on a vehicle (60%). The difference is smaller in Brazil, which has a customs duty of 20% on vehicles compared to 16% for parts and accessories. The incentive to import CKD into European countries is lower because their import duties on vehicles are generally low in comparison with the foreign countries' (up to 8%), and the difference between those duties and the duties charged on parts is also small.

The difference between the customs duties paid on imports into European countries and exports from Europe into destination markets is significant. For example, Fig. 71 outlines the customs duties paid on motorcycles with an engine capacity over 800cc—those imported into, and exported by, European countries, by value. Imports into European countries face customs duties of up to 6%, but European manufacturers selling abroad can face much higher charges.

In India, the customs duty on these motorcycles is equal to the value of the vehicle itself (100%). While in Vietnam and Thailand the customs duty for importing one of these European-manufactured motorcycles is greater than half of the vehicle's value, at 63.3% and 60.0%, respectively. This makes European motorcycles less competitive in these countries' domestic markets. With vast differences in the customs duties charged, European countries have become a significant net importer from these Asian countries.

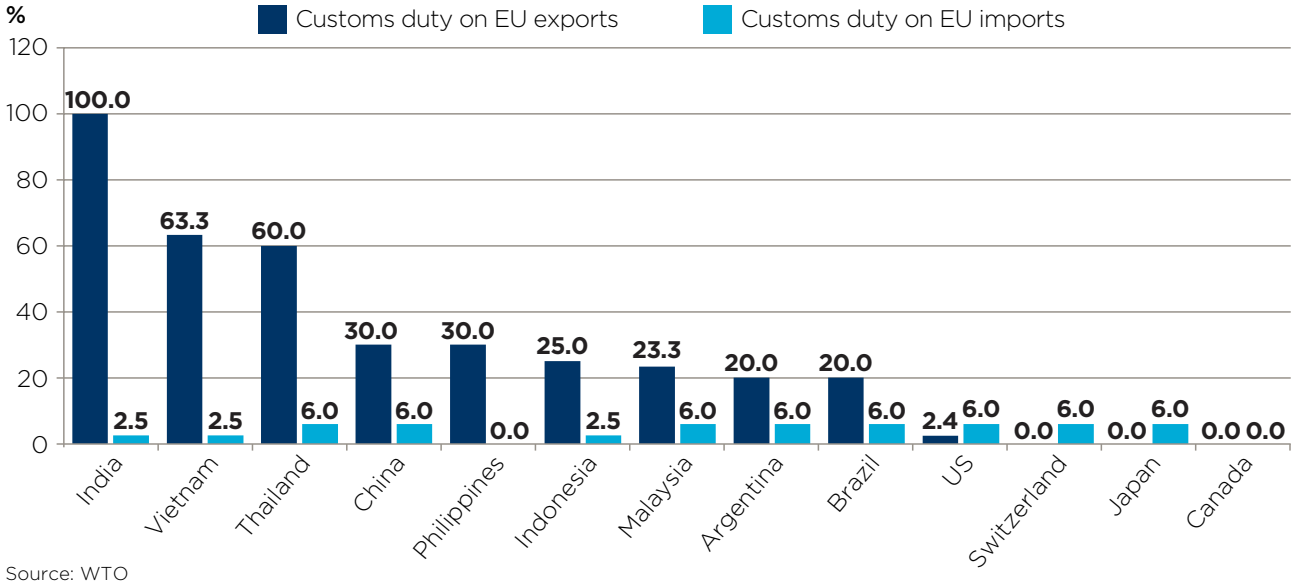
"Import tariffs in key Asian markets such as India and Thailand are high and with no reciprocity to the EU's own rates.

These high custom duties protect their domestic markets by making European vehicles relatively more expensive."

"India has high import duties on L-category vehicles, which makes European-manufactured vehicles less competitive.

Basic customs duty is 100% on motorcycle imports, and this is paid on top of the country's goods and services tax of 28%."

Fig. 71: Customs duties paid on EU-27 and UK exports and EU-27 and UK imports of motorcycles with an engine capacity of 800cc and above



Source: WTO

7.4.2 Tariff revenues—imports into the EU-27 and UK

The L-category vehicle industry raises significant tax revenues in European countries through import tariffs. Some €248 million in duties were paid on imported L-category vehicles and their parts and accessories in the EU and UK in 2019. This is a sizeable contribution to these countries. It is sufficient to pay for 6% of the European Union's total annual spending on large infrastructure projects, for example, or it could fund the annual salaries of 7,570 new primary school teachers.[47]

The tariff revenues were spread across the L-category vehicles. Fig. 72, below, shows the estimated revenues split by category. An estimated €51 million in import duties were paid on electric-powered motorcycles. A large proportion of these were imported from China, and a 6% import tariff is paid on these purchases. While €57 million in import tariffs was paid on motorcycles with an engine capacity greater than 800cc, which have a default import duty of 6%.

The major Asian motorcycle export countries accounted for a significant share of the European import tariff revenues. Because most countries importing into European countries pay the same—or similar—rates, the revenues raised by country largely reflect the value they imported into Europe. China paid the most in European import tariffs at €90 million. This is followed by Thailand, with €86 million, as shown in Fig. 73.

"Some €248 million in duties were paid on imported L-category vehicles and their parts and accessories in the EU and UK in 2019.

This would be sufficient to pay for 6% of the EU's total annual spending on large infrastructure projects, or the annual salaries of 7,570 new primary school teachers."

Fig. 72: Estimated tariff revenues on imports into the EU-27 and UK in 2019

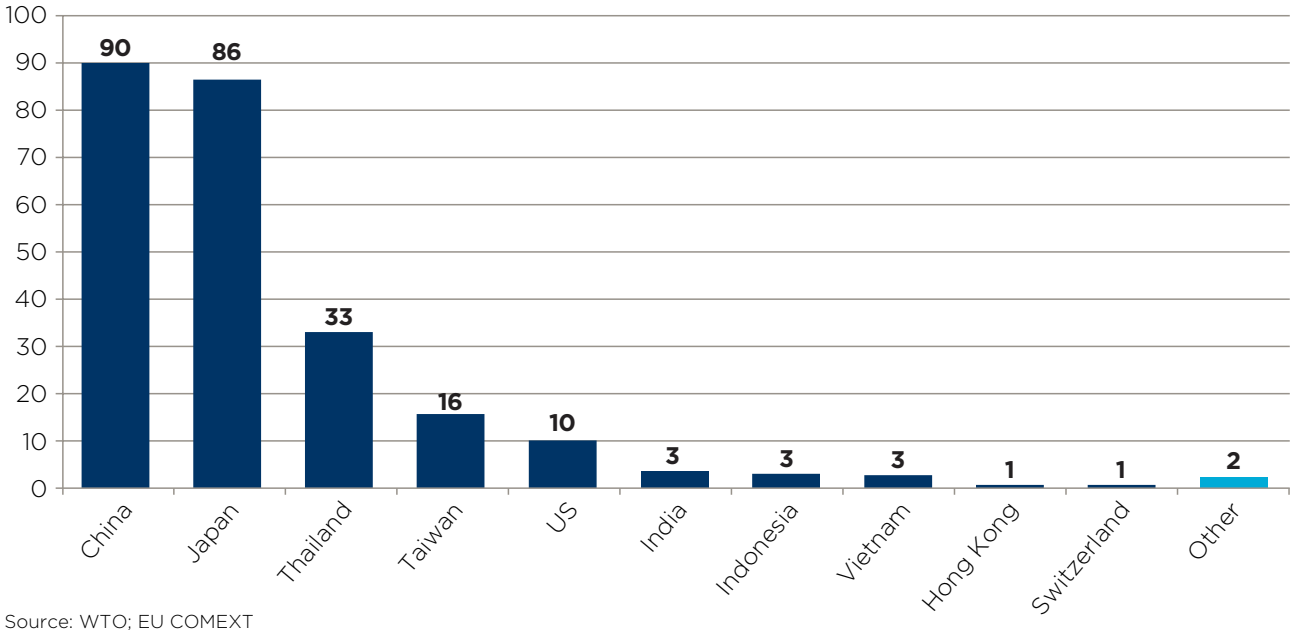
Category	€ millions	Percentage share of total
Motorcycles up to 50cc	12	5%
Motorcycles and scooters between 50cc and 250cc	35	14%
Motorcycles between 250cc and 500cc	19	8%
Motorcycles between 500cc and 800cc	39	16%
Motorcycles over 800cc	57	23%
Electric-powered motorcycles	51	21%
Other	4	2%
Parts and accessories	31	13%
Total	**248**	**100%**

Source: WTO, EU COMEXT

[47] Based on the average salaries of new primary school teachers from 21 EU members (€32,695). Data from the OECD.

Fig. 73: Estimated tariff revenues on imports into the EU-27 and UK in 2019, by country of origin

€ millions



Source: WTO; EU COMEXT

7.4.3 Tariff revenues—exports from the EU-27 and UK

The European L-category vehicle industry pays €127 million in import tariffs around the world as it sells L-category vehicles, parts, and accessories to the rest of the world. Some €49 million in import tariffs were paid on European parts and accessories as they were sold into other countries. In terms of L-category vehicles, motorcycles with an engine capacity over 800cc generated the most tariff revenues abroad, at €45 million.

Fig. 74: Estimated tariff revenues on exports from the EU-27 and UK in 2019

Category	€ millions	Percentage share of total
Motorcycles up to 50cc	1	1%
Motorcycles and scooters between 50cc and 250cc	6	5%
Motorcycles between 250cc and 500cc	12	10%
Motorcycles between 500cc and 800cc	11	9%
Motorcycles over 800cc	45	36%
Electric-powered	1	1%
Other	1	1%
Parts and accessories	49	39%
Total	**127**	**100%**

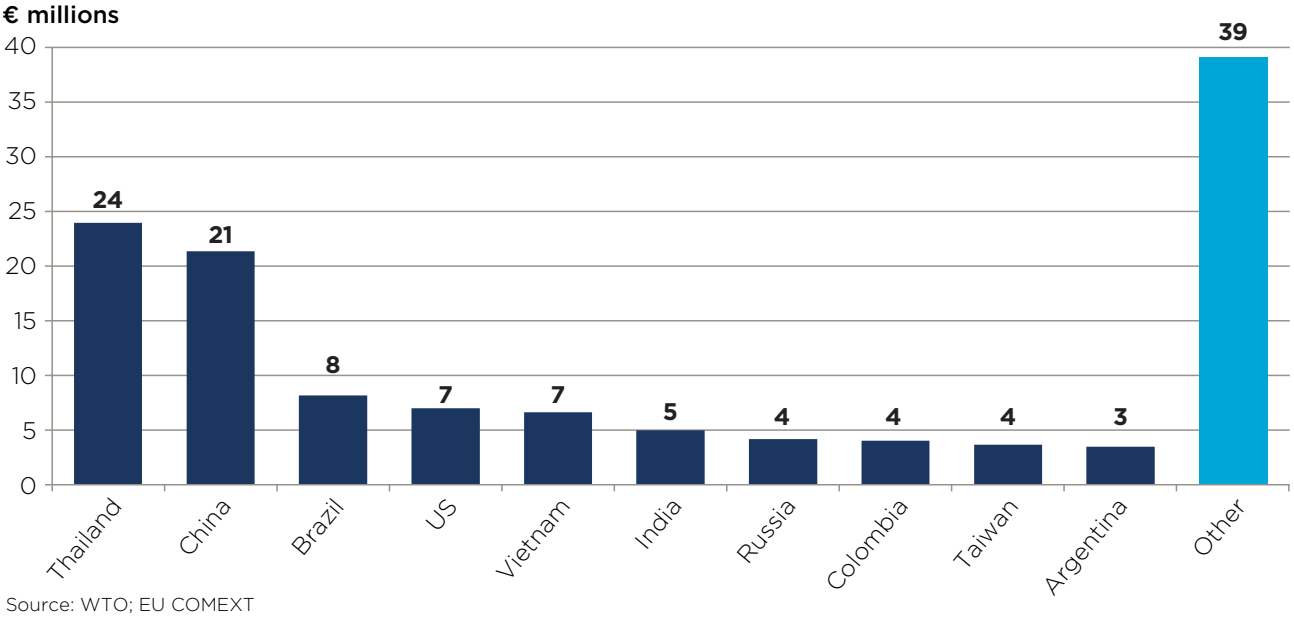
Source: WTO, EU COMEXT

“Reducing the high import tariffs in Asian markets to a level that is on par with the EU’s rates would have a significant impact on the price of vehicles in the destination markets, and would lead to an increase in demand for European vehicles.”

Destination countries’ import tariff rates are much more varied, so the revenues generated are spread much more widely across the countries. Thailand and China generated high revenues in 2019 through their high customs duties.

Their import tariff revenues totalled an estimated €24 million and €22 million, respectively. While most exports were sold to the United States, they only generated €7 million in revenues through importing European goods.

Fig. 75: Estimated tariff revenues on exports from the EU-27 and UK in 2019, by destination country



Source: WTO; EU COMEXT

7.5 CONCLUDING REMARKS

One of the main factors influencing the international trade of European L-category vehicles is the high customs duties in place in many of the key markets (largely those Asia). Import tariffs in countries such as India and Thailand are high and with no reciprocity to the European Union’s own rates. The high custom duties in these countries are intended to protect their large domestic market by making European vehicles relatively more expensive. This contributes to the EU’s trade deficit for L-category vehicles.

Changing these customs duties would reshape the global L-category vehicle market by making European exports more competitive in key markets. Reducing the higher import tariffs to a level that is on par with the EU’s own rates would have a significant impact on the price of L-category vehicles in the destination markets. This would lead to an increase in demand for European vehicles, the extent of which would be determined by the price elasticity of demand for L-category vehicles in the destination markets.



8. USER AND ENVIRONMENTAL BENEFITS

This chapter highlights some of the additional benefits that motorcycles generate for users and the environment. Motorcycle users can benefit from reduced journey times, particularly in urban areas, as smaller vehicles can move more easily through congested areas and require less space to park. This can generate significant time savings, with their associated economic and environmental benefits.

"Motorcycle users benefit from reduced journey times, particularly in urban zones, as smaller vehicles can move more easily through congested areas.

Since two-wheelers have smaller dimensions, motorcyclists also spend less time looking for space to park."

The benefits of motorcycle use are particularly pertinent given the impact of the coronavirus pandemic. People's appetite for different modes of transport has been affected by the need for social distancing. It remains to be seen if the demand for public transport in major urban areas recovers to its level prior to the beginning of the pandemic. A study by Transport for London (TfL) found that if people switched away from public transport due to capacity constraints under lockdown, the number of cars would increase markedly. This was found to have a significant impact on congestion, increased journey times and pollution.

This chapter estimates the time savings that arise from the use of motorcycles to commute rather than other modes of transport in a representative city and across the EU27 and UK. It then undertakes some scenario analysis, looking at the time saved if commuters who travel to work by car switch to using a motorcycle. We estimate the monetary value of that time saving to the user and the reduction in costs from lower fuel consumption and operating costs of travelling by motorcycle compared to a car.

Motorcycles can also offer environmental benefits over other modes of transport, consuming less fuel relative to cars resulting in lower emissions. Greenhouse gas emissions in the EU fell to an estimated 4.3 billion tonnes of CO_2 equivalent as of 2019. But current forecasts suggest that the EU will not be able to meet emissions targets in 2030 and beyond unless drastic changes are made.[48] We estimate the reduction in greenhouse gas emissions that is generated by switching from commuting by car to a motorcycle.

This analysis is intended to provide a brief illustration of the wider benefits of motorcycling using a limited set of information. While a full cost benefit analysis is beyond the scope of the current study, we can identify and highlight areas where motorcycles offer important benefits. The costs of using the various methods of transport, such as sound emissions and road safety performance, are not considered in this analysis.[49]

The authors of the report wish to thank EMISIA for making available the datasets used in this section of the report.

[48] European Environmental Agency, *Total greenhouse gas emission trends and projections in Europe* (https://www.eea.europa.eu/data-and-maps/indicators/greenhouse-gas-emission-trends-6/assessment-3)' (2020).
[49] For a detailed discussion on negative externalities please see the European Commission's *Handbook on the external costs of transport* (2019) and the FIA's *External costs of transport* (www.fiaregion1.com/better-deal-motorists/

8.1 TIME SAVINGS

In this section, we estimate the time saved by commuters who travel to and from work by motorcycle, rather than using a car, in one European city and across the EU27 and UK. We then undertake some scenario analysis to investigate how those time savings would grow if a higher proportion of commuters, who currently use cars, swapped to using a motorcycle in both geographies.

The analysis is important as the economic and environmental benefits that arise from using motorcycles are, in part, determined by the journey time that is saved by using this mode of transport relative to others. We subsequently estimate the monetary value of the time savings and lower environmental damages, plus the lower fuel consumption and other operating costs.

The calculations of the existing time savings by commuters who use motorcycles, rest on three pieces of data. First, estimates of the length of time it takes to undertake the same journey in various locations in Europe by different modes of transport. Second, the average journey time for all commuters into a city using the myriad of routes they travel. Third, estimates of the numbers of commuters who currently use the different modes. The analysis does not consider the secondary benefits to existing road users arising from improved traffic fluidity as more travellers use motorcycles, so in this sense may be conservative.

"The latest FEMA's European Mobility Test shows that commuting times for motorcyclists are around 30% shorter than for those travelling in cars (31 minutes vs 44 minutes). Routes taken by motorcyclists are 10.8% shorter."

Fig. 76: FEMA mobility test results (journey time in minutes), 2019

		Motorcycle (including scooters and mopeds)	Car	Bicycle	Public transport
Italy	Rome	34	45	47	54
Cyprus	Limassol	23	33	32	39
France	Cannes	21	37	25	75
	Bordeaux	27	58	31	52
	Nantes	32	38	26	43
	Annecy	21	41	81	133
Netherlands	Utrecht	30	43	60	35
Romania	Bucharest	17	33	26	60
Fleet weighted European average[50]	Time	31	44	47	56
	Difference relative to car travel	–30%	0%	+6%	+27%

Source: FEMA, Oxford Economics

[50] The average is weighted by the size of the respective countries' motorcycle fleets. Data from European Commission's DG MOVE, *Transport in figures*, (2019).

The Federation of European Motorcyclists' Association (FEMA) periodically undertakes research into journey times by different modes of transport. The latest edition of their European Mobility Test was carried out between May and September 2019. It investigates the time taken to travel from a place outside of various European cities to an office inside each city during morning rush hour by different modes of transport (Fig. 76).[51]

In seven of the eight European cities, motorcycles were found to be the quickest mode of transport to travel the route. In Nantes, they are second to bicycles. Across all eight cities, motorcycles are always quicker than cars. On average, journey times were around 30% shorter than those travelling in cars across all the cities (31 minutes versus 44 minutes).

Eurostat publish data on the average length of time people's journeys into work take in minutes. It is available for 12 of the 27 EU Member States.

Istat and Eurostat also publish data on the number of commuters using different modes of transport to travel into Rome and across the member states. Some of it comes in two parts, namely, the share of journeys to work by bicycle, car, foot, motorcycle, and public transport and people commuting into the city.

8.1.1 Estimates of the current time savings made by commuters in Rome who travel by motorcycle

We initially estimate the time savings made by motorcycle commuters relative to how long they would have taken using other transport modes in one major European city. The city chosen is Rome because of both the availability of data, but also the popularity of powered two-wheelers in Italy. Of the 33.5 million motorcycles and mopeds registered in Europe in 2018, Italy had comfortably the most with 8.7 million.[52] The FEMA test suggests commuters by motorcycle took 34 minutes to undertake the journey it took car drivers 45 minutes to undertake. This is a time saving of 27%.

Eurostat data suggest it takes the average commuter in the Rome functional urban area (the city and its commuting zone) 40.6 minutes to get to work.[53] This encompasses over two million people travelling a myriad of routes via different modes of transport.

The Italian National Institute of Statistics (Istat) publish data on the mode of transport used by people to get to work in Rome (Fig. 77).[54,55] They show that 1.5 million people commuted into Rome in 2019. Public transport carried a further 680,000 and 103,000 commuters used a motorcycle to get to and from work.

To carry out our analysis, we have scaled the relative time differences between the modes of transport from the FEMA test for Rome to deliver the average commute time of 40.6 minutes. The calculation uses the number of people commuting by each mode of transport as the weights. This suggests across the myriad of journeys, on average, commuters who used a motorcycle got to work are 10 minutes quicker than car drivers, 12 minutes faster than those that cycled, and 18 minutes faster than those who travelled on public transport.

Fig. 77: Commuting patterns in Rome, 2019

Transport mode	People who commute to work in Rome (000s)	Percentage share (%)
Motorcycle (including scooters)	103	4%
Car	1,505	65%
Bicycle	28	1%
Public transport	680	29%
Total	**2,316**	**100%**

Source: Istat

[51] For further information on the FEMA Mobility Test, including information on the routes and vehicles used, and the timing of the tests, please visit: https://www.femamotorcycling.eu/library/mobility-test-2019/.
[52] ACEM 'https://www.acem.eu/market-data' (2020).
[53] Eurostat, *City statistics: Transport – functional urban area*, (2011).
[54] We use data for the number of commuters and the share of commutes by transport method for the Lazio region that contains and surrounds Rome.
[55] Istat, *Aspects of daily life: Usual way of getting to work - regions and type of municipality*, (2019).

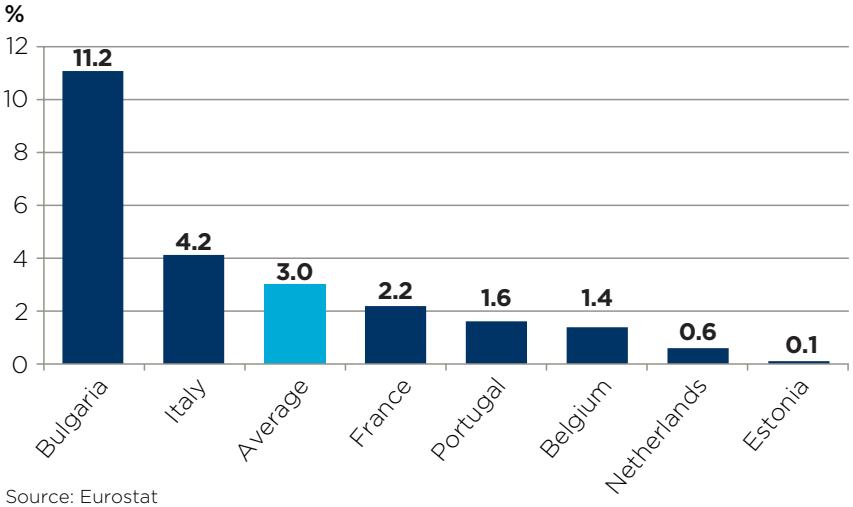
Assuming each person made the journey twice each day (there and back) and they worked for 240 days are year, we estimate the 103,000 existing motorcycle users in Rome saved 340,281 days a year from using a motorcycle rather than a car to commute to work. They saved an average of 422,859 days relative to the weighted average of commuters who used all other modes of transport (cars, public transport and bicycles).

8.1.2 Estimates of the current time savings made by commuters across the EU27 and UK who travel by motorcycle

To estimate how much quicker commuting is by motorcycle rather than by other modes of transport across the EU27 and UK, we calculated a fleet-weighted average from the five countries used in FEMA's data. The weights used are the stock of registered powered two-wheeled vehicles in each of the five countries. This shows on average the length of time it takes to commute on a motorcycle is 30% shorter than in a car.

Data from Eurostat shows the modes of transport people use to commute across Europe more broadly. The share of journeys to work carried out on a motorcycle varies, but the fleet-weighted average across the countries is 3.0% (Fig. 78). Italy generally has more commuters using motorcycles

Fig. 78: Share of commuters using motorcycles, by country



Source: Eurostat

(4.2%) than other countries for which data are available, such as France (2.2%), Portugal (1.6%), and Belgium (1.4%).[56] But Rome's share of motorcyclists is comparable to other major European cities. For instance, Barcelona (4.3%) and Nice (4.2%) have a similar share of commuters using motorcycles to Rome.

Extending this analysis to Europe as a whole, some 175.0 million people are employed in cities, towns, and suburbs across the EU-27 and UK. From this, we can deduct the 9.3 million people that 'usually' work from home and the 17.2 million people that walk to work.[57] The remaining 148.3 million use private or public transport to travel to and from work. Applying the above information on commuting patterns from Eurostat—that 3.0% of commuters use motorcycles—suggests that 5.0 million Europeans commute to work by motorcycle (Fig. 79).

Fig. 79: Commuting patterns in the EU27 and UK

Transport mode	Share of commutes, Eurostat (%)	Estimated number of people who commute to work (millions)
Motorcycle (including scooters)	3%	5.0
Car	71%	105.8
Bicycle	9%	13.2
Public transport	16%	24.3
Total	**100%**	**148.3**

Source: Eurostat

[56] Eurostat, *Transport - cities and greater cities data*, (most recent year of available data used for each country).
[57] Eurostat, *Employed persons working from home as a percentage of the total employment*, (2019).

Across the EU27 and UK, the average journey time taken to commute into work by motorcycle was 28 minutes—some 12 minutes faster than the car. With some 5 million people commuting into work and back 240 days a year, it is possible to estimate motorcyclists saved 20.1 million days a year across the 28 countries compared to if they travelled by car.

"An estimated 5 million people across the EU and the UK use motorcycles to commute to work on a daily basis."

We acknowledge this is a very simple methodology. The FEMA tests were carried out over one route from outside of the city to a point inside. Ideally, the scaling up of commuting times would consider a traffic model of the city with traffic speed information recorded at different times of the day throughout the year and across multiple routes. Moreover, the tests are only carried out in cities in five countries. But in the absence of further data, our simplified methodology may provide a broad brush guide to the time savings motorcycles deliver to Europeans relative to travelling by car.

"Across Europe, the average journey time taken to commute into work by motorcycle was 28 minutes—some 12 minutes faster than the car."

8.1.3 Scenario analysis

To investigate the potential time savings available to commuters in the EU27 and UK in the future from switching from travelling by car to using a motorcycle, we undertake some scenario analysis. Our analysis uses four scenarios: where 0.5%, 1%, 2.5%, and 5% of commuters using cars shift to using a motorcycle. For each scenario we consider how much time would be saved on the commute, then aggregate this finding across a full year (assuming an outbound and inbound commute daily for 240 working days a year).[58] The results for a city (where Rome is used as the basis of the calculation) are:

- Under the lowest scenario (0.5%) there would be an additional 7,530 people commuting by motorcycle in the city. On each inward or outward journey, they would collectively save over 1,200 hours. This equates to a time saving of 24,800 days (0.6 million hours) across the full year (Fig. 80).
- Under the 1% scenario there would be an additional 15,050 commuters using motorcycles. Together they would save nearly 2,500 hours on each commute, which sums to 49,800 days of time savings (or 1.2 million hours) per annum.
- Under the 2.5% scenario there would be 37,630 more motorcyclists in the city collectively saving 6,220 hours per commute. Across the full year this would save nearly 124,400 days (or 3.0 million hours) in commuting time.
- Under the highest scenario (5%) there would be over 75,000 more commuters using motorcycles in the city. They would save an estimated 12,430 hours per day. This sums to 248,600 days (or 6.0 million hours) of time savings across the year.

Fig. 80: Scenarios for the estimated time savings from commuters who use cars switching to motorcycles, Rome

Scenarios			
0.5% switch	**1% switch**	**2.5% switch**	**5% switch**
Number of commuters switching to motorcycling			
7,530	15,050	37,630	75,250
Total time saved per commute (hours)			
1,240	2,490	6,220	12,430
Total time saved per annum (days)			
24,800	49,800	124,400	248,600

Source: Eurostat, FEMA, Istat, Oxford Economics

[58] This analysis doesn't account for the impact on congestion of reducing the number of cars, preferences, or the availability of motorcycles or scooters. Traffic speeds would be expected to change as more people switched out of cars.

To investigate the potential commuting time savings in the EU27 and UK, we consider instead the 105.8 million people who commute to work by car across the 28 countries. Under the same scenarios, the number of additional motorcyclists could be up to 5.3 million (which would more-than-double the number of people currently commuting by motorcycle). This scenario (the 5% switch) would result in a time saving of 21.2 million days per year (Fig. 81).

Fig. 81: Scenarios for the estimated time savings from commuters switching to motorcycles, EU27 and UK

Scenarios			
0.5% switch	1% switch	2.5% switch	5% switch
Number of commuters switching to motorcycling			
0.5	1.1	2.6	5.3
Total time saved per commute (million hours)			
0.1	0.2	0.5	1.1
Total time saved per annum (million days)			
2.1	4.2	10.6	21.2

Source: Eurostat, FEMA, Oxford Economics

8.2 MONETARY VALUE OF THE TIME SAVINGS

People value their time at work and in pursuit of leisure. By cutting commuting times, it enables people to have more time to either work or enjoy their favoured social pursuits. A monetary value can be placed on this time to represent how much individuals would pay to save time on their journey. The Italian Ministry for Infrastructure and Transport provide monetary values for people's time depending on the purpose of their journey (Fig. 82).[59]

By applying these values to the estimated time savings in the scenario analysis in Section 8.1.3, we can estimate the monetary value of the time savings that accrue to individuals. For the analysis of the representative city (Rome), we use the figure of €7.70 per hour—the midpoint value for commuters' time in Italy. This analysis makes the simplifying assumption that each car has just the driver and no passengers.

"If 5% of those commuting by car in the EU-27 and UK switched to using a motorcycle, they would save 21.2 million days per year, with a saving of €3.3 billion."

Fig. 82: Value of time in Italy, by purpose of journey[60]

	Business	Commuting	Other
€ per hour (2016 prices)	12–20	5 - 10	5 - 15
€ per hour (2019 prices) – estimated	12.3–20.5	5.1–0.3	5.1–15.4
€ per hour (2019 prices) – midpoint	16.4	7.7	10.3

Source: Italian Ministry for Infrastructure and Transport

[59] Ministero delle Infrastrutture e dei Trasporti, *Linee guida per la valutazione degli investimenti in opere pubbliche*, (2017).
[60] 2019 prices are estimated using data sourced from Eurostat.





We estimate that if 5% of commuters using cars in Rome switched to using a motorcycle in the scenario analysis, they would make time savings worth €45.9 million a year (Fig. 83). If 2.5% switched they would save time worth €23.0 million, compared to €9.2 million under the 1% scenario. In the lowest scenario, where 0.5% of other commuters use motorcycles instead of cars, the monetary value of the time saved would be €4.6 million across the year.

These results are for commuters into the city of Rome. They are broadly proportionate with those reported by Ambrosetti (2014) for the whole of Italy. That study found that if 5% of Italy's car users switched to using motorcycles they would save 3.3 million days per year with a monetary value of €534 million per annum (in 2019 prices).[61,62]

"If 5% of commuters using cars in Rome switched to using a motorcycle in the scenario analysis, they would make time savings worth €45.9 million a year."

Fig. 83: Annual monetary value of time savings from switching to commuting by motorcycle rather than a car in Rome

	Scenarios			
	0.5% switch	1% switch	2.5% switch	5% switch
Total per commute				
Total time saved (hours)	1,240	2,490	6,220	12,430
Value (€)	9,540	19,150	47,840	95,610
Total per annum				
Total time saved (days)	24,800	49,800	124,400	248,600
Value (€ million)	4.6	9.2	23.0	45.9

Source: Oxford Economics

The value of a person's time varies from country to country. To estimate the monetary value of the time savings available from switching from commuting by car to using a motorcycle, we use the average monetary value of time estimated by the European Commission in 2019. This suggests an hour of time across the EU-27 countries and UK is worth €6.47.[63]

In the scenario analysis, if 5% of those commuting by car in the EU-27 and UK switched to using a motorcycle, they would save time with a monetary value of €3.3 billion per annum (Fig. 84). If just 0.5% of commuters who currently travel by car switched, the time saving would be worth €0.3 billion.

Fig. 84: Scenarios on the annual monetary value of time saved in the EU27 and UK from switching to commuting by motorcycle rather than using a car, 2019 prices

	Scenarios			
	0.5% switch	1% switch	2.5% switch	5% switch
Total per commute				
Total time saved (million hours)	0.1	0.2	0.5	1.1
Value (€ millions)	0.7	1.4	3.4	6.9
Total per annum				
Total time saved (million days)	2.1	4.2	10.6	21.2
Value (€ billions)	0.3	0.7	1.6	3.3

Source: Oxford Economics

[61] Ambrosetti, *Il valore delle 2 ruote: Lo scenario dell'industria, del mercato e della movilita*, (2014)
[62] Our results for Rome are equivalent to around 8% of the total time saved across Italy as found by Ambrosetti (2014). Rome accounts for around 5% of the country's vehicle fleet but will have greater congestion as the country's largest city.
[63] European Commission, *Handbook on the external costs of transport*, (2019). This figure assumes that all time saved from commuting is used by the individual as personal time (for leisure and other activities) and not for additional business.

8.3 CASH SAVINGS FROM LOWER FUEL USE AND OPERATING COSTS

Motorcycle users save money operating their vehicles relative to car users. The savings come in two forms. First, motorcycles consume less fuel than cars to travel the same distance. The average European motorcycle up to 250cc consumes 2.8l/100km fuel (some 62% of Europe's motorcycles and mopeds fall into this category). This is significantly lower than the average petrol car which consumes 9.4l/100km (calculated from COPERT emission factors).[64] This delivers environmental benefits discussed further in Section 8.4. Second, the need for smaller parking spaces and ability to manoeuvre down thinner roads, enables motorcycles to travel less distance in the FEMA tests in some countries. This lowers the costs of wear and tear, maintenance, driving insurance, breakdown cover, and taxes on the vehicle.

In the FEMA test in Rome, the journey taken by motorcycle was 11.8% shorter than the distance covered by the car. Across the full selection of European cities, the route taken by the motorcycle was 10.8% shorter, on average.

To capture the full breadth of cost-saving benefits entailed in running a motorcycle, our analysis will use the payment rates allowed by the Italian authorities for business mileage expenses as a measure of cost per kilometre for the different types of vehicle.

Fig. 85: FEMA test results (distance covered), 2019

	Rome		European average	
Transport mode	**Test distance (km)**	**Distance saved relative to a car (%)**	**Test distance (km)**	**Distance saved relative to a car (%)**
Motorcycle	14.4	-11.8%	14.7	-10.8%
Car	16.3	-	16.4	-
Bicycle[65]	15.3	-6.1%	14.6	-11.0%
Public transport	17.0	4.3%	15.8	8.0%

Source: FEMA

The Italian Revenue Agency has different business mileage rates for almost every vehicle, depending on its characteristics.[66] This analysis uses the 2019 rates payable for a Fiat Panda 1.2 to represent the car and for a Honda SH125 to represent a motorcycle, as these were Italy's most purchased car and motorcycle, respectively, in 2019.[67] The cost associated with running the car (€0.39 per km) was considered to be more than double those associated with the motorcycle (€0.16 per km (Fig. 86)). The same costs will be used for the European extrapolation.

We also account for the distance savings discovered in the FEMA test, which shows that motorcycles can cover equivalent routes in shorter distances than other modes of transport. The average commuting distance in Rome according to transport planner app Moovit was 6.8km.[68]

"The average commute across European cities is 7.6 km. We estimate that commutes are 0.9 km shorter when a motorcycle is used, compared to a car."

Fig. 86: Italian business mileage rates for vehicle models, 2019

Vehicle	Model	Cost per km (€)
Car	Fiat Panda 1.2	0.3855
Motorcycle	Honda SH125	0.1645

Source: Italian Revenue Agency

[64] This is calculated from the average emission factor for European vehicles (data from COPERT) weighted by the European vehicles fleets (data from EMISIA) that are used in Section 8.4, using a ratio of 0.43l/100km of petrol consumed per 10g/km CO_2 emitted from the International Council on Clean Transportation. The average fuel consumption for motorcycles between 250cc and 750cc was 6.4l/100km for motorcycles greater than 750cc was 7.0l/km.
[65] In the Rome test the bicycle route consisted partially of a cycle path.
[66] Agenzia delle entrate, *Gazzetta Ufficiale„ n. 295 del 20 dicembre 2018 - Serie generale*, (2018).
[67] Unione Nazionale Rappresentanti Autoveicoli Esteri (UNRAE).
[68] Moovit, *Moovit Global Public Transport Report 2019*, (2020).

By applying the results from the FEMA test in terms of distance covered (weighted by each mode of transport's share of total commutes as with the time saving calculations above), we can estimate the distance covered by different methods of transport on the average commute in Rome. We estimate that, for an equivalent journey, motorcycles would be able to take a 5.9km route, whereas cars would cover 6.7km (Fig. 87).

"Motorcycles offer cost savings due to lower fuel use and operating costs. For an average commuter in Europe, operating a motorcycle (€545) costs nearly one-third of what it costs to use a car (€1,435) across a year. These savings increase the disposable income and living standards for households."

The average commute across European cities was 7.6km. Using the same method, we estimate that commutes are 0.9km shorter when a motorcycle is used, compared to a car.

Based on this, we estimate that operating a motorcycle is €775 less expensive per annum than operating a car in Rome. This estimate captures the lower operating cost of the motorcycle along with the effects of distance saving. The estimated annual cost of operating a car (€1,245) is significantly higher than the motorcycle (Fig. 88). With operating costs of €470 per annum, the motorcycle's costs are equivalent to 38% of the car's costs. This saving will increase the disposable income for households and, in turn, increase living standards.

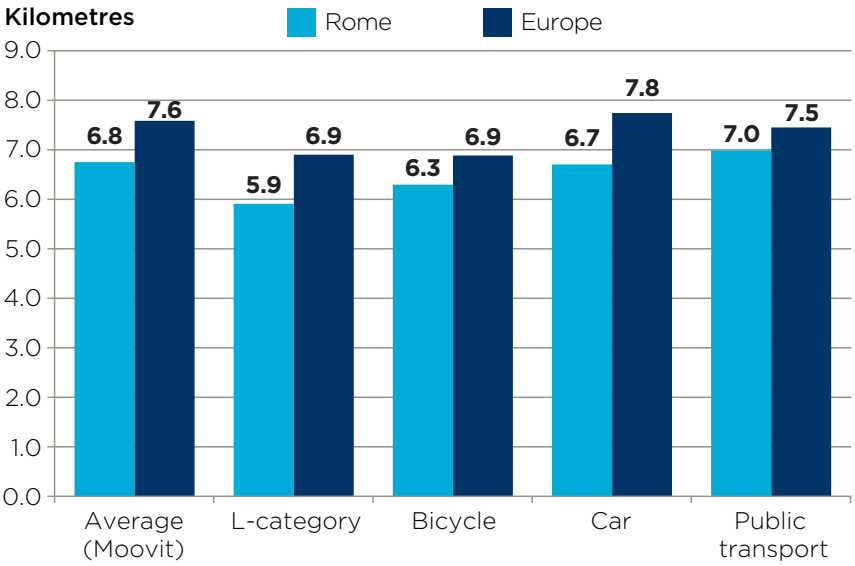
The average disposable income per household in Rome is €42,860, so the cash savings that arise from switching to a motorcycle are equivalent to 1.8% of this figure.

The cash savings are greater when considering the EU-27 countries and UK, given the longer average commuting distances. We estimate that operating a motorcycle is €890 less expensive per annum than operating a car across the European countries, on average.

Scaling these results to Rome's commuters shows that sizeable cash savings can be derived from switching. Using the same scenarios as used previously—0.5%, 1%, 2.5%, and 5% of car users switching to use motorcycles, we estimate:

- If 0.5% of commuters by car switched to using motorcycles (or 7,525 individuals), the total user cost would fall by around €6 million (Fig. 89).
- If 1% of car users had commuted by motorcycle instead of car (15,050 individuals), the total user cost would decline by around €12 million compared to the baseline.
- If 2.5% of car users commuted by motorcycle instead of by car (37,630 individuals) then the total user cost would be €29 million lower a year.

Fig. 87: Estimated commuting distances



Source: Moovit, FEMA, Istat, Oxford Economics

- If 5% of car users switched to motorcycles instead of cars (75,250 individuals) then the total user cost across the year would have been €58 million lower.

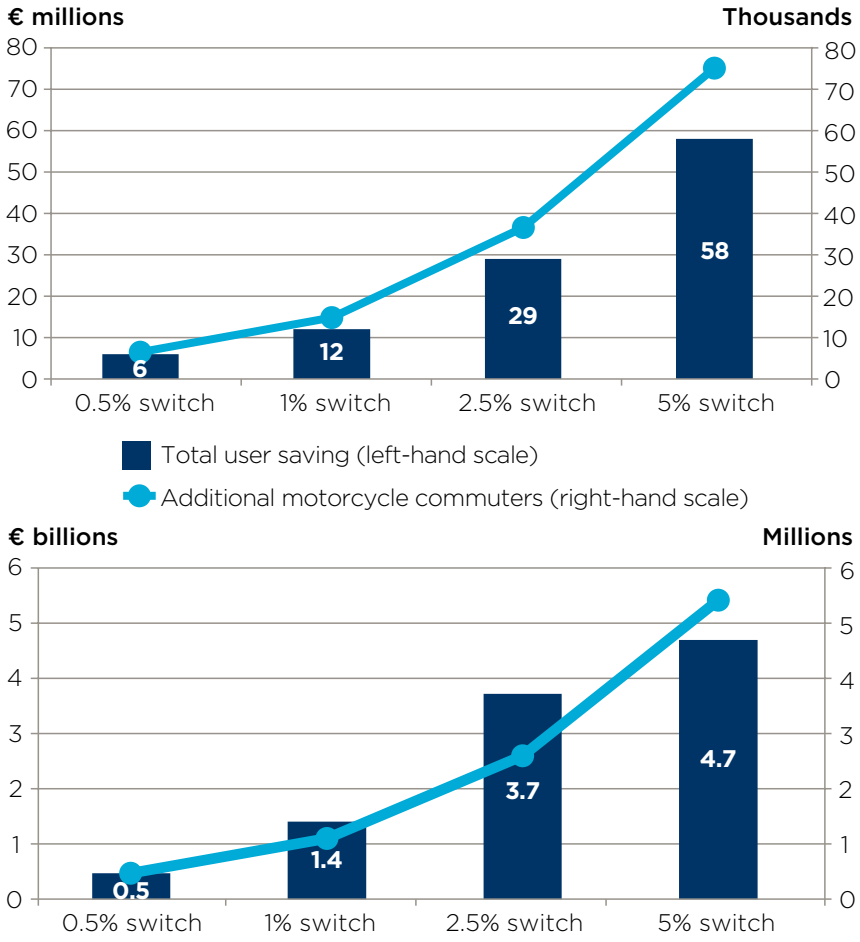
Across Europe, the benefits could be as high as €4.7 billion lower under the 5% scenario. This is the accumulated user cost savings of 5.3 million people commuting to work by motorcycle rather than by car.

Fig. 88: Estimated individual cash savings from switching from car to motorcycle for commuting, 2019

		Distance per commute (km)	Distance per annum (km)	Cost per km (€)	User cost per annum (€)
Rome	Car	6.7	3,228	0.3855	1,245
	Motorcycle	5.9	2,847	0.1645	470
	Difference	-0.8	-381	-0.22	-775
Europe	Car	7.8	3,728	0.3855	1,435
	Motorcycle	6.9	3,325	0.1645	545
	Difference	-0.8	-404	-0.22	-890

Source: Oxford Economics

Fig. 89: Total user savings arising from additional motorcycle commuters in Rome (left) and Europe (right), 2019



Source: Oxford Economics

"If 5% of car users in Europe switched to motorcycles, the total user cost across the year would be €4.7 billion lower. This is the accumulated user cost savings of 5.3 million people commuting to work by motorcycle rather than by car."

8.4 ENVIRONMENTAL BENEFITS

Motorcycles emit significantly less greenhouse gases than cars. Each vehicle in Europe is given an emission factor: a measure of how much greenhouse gas emissions are generated by the vehicle's activity. Our analysis shows the average emission factor for a European motorcycle (up to 250cc) is 64g/km of CO_2 emissions (Fig. 90). This is equivalent to around one-third of the respective emissions for a car. These smaller motorcycles (under 250cc, including moped) account for 62% of Europe's powered-two wheeler fleet—with 22 million such vehicles registered around the European countries.

More powerful motorcycles also offer emission savings relative to cars. Motorcycles between 250cc and 750cc (149g/km) and motorcycles over 750cc (163g/km) both have weighted average CO_2 emissions factors markedly lower than both petrol and diesel cars (218g/km and 200g/km, respectively). These figures are calculated by applying the emissions factors shown in Fig. 91 (sourced from the COPERT database) to the current European fleet of vehicles split by European Emission Standard class (sourced from EMISIA).

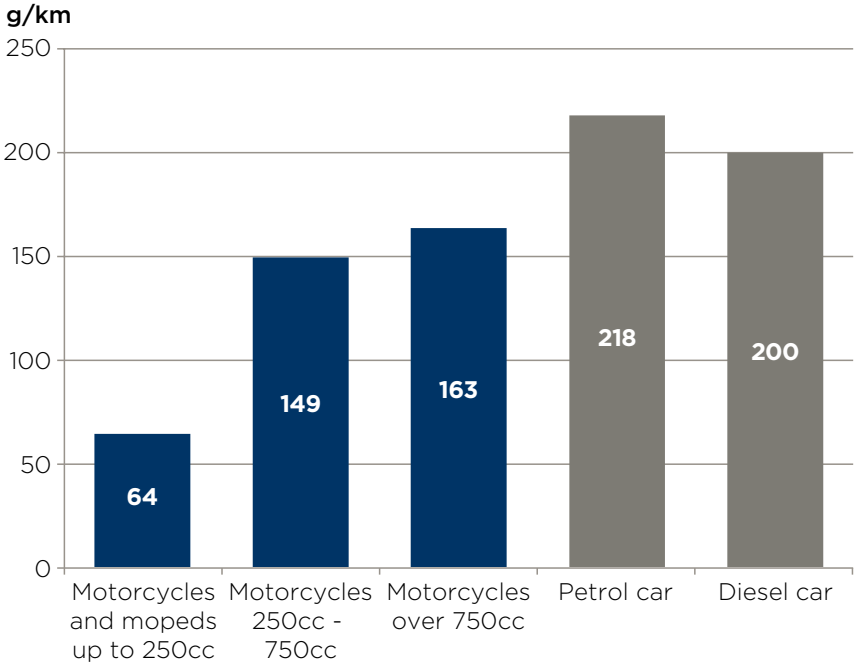
This analysis also considers the emission of Nitrogen Oxides (NOx), and Particulate Matter (PM; both $PM_{2.5}$ and PM_{10}). The average emission factor for motorcycles, petrol and diesel cars in each European Emission Standard class is shown in Fig. 92. While Nitrogen Oxide emissions are significantly lower among modern vehicles, motorcycles still offer notable emission savings relative to cars. The Particulate Matter emissions of motorcycles are a fraction of those emitted by a diesel car.

"The average European motorcycle under 250cc (62% of Europe's powered-two wheeler fleet, 22 million vehicles) is 64 g/km of CO_2 emissions.

This is equivalent to 33% of the emissions for a car, and significantly lower than the average petrol car, at 218g/km."

"The particulate matter emissions of motorcycles (both PM2.5 and PM10) are only a fraction of those emitted by a diesel car."

Fig. 90: Average CO_2 emission factor in Europe, weighted by European vehicle fleet



Source: COPERT, EMISIA

Fig. 91: Average urban emission factors for motorcycles and cars in Europe

CO_2 (g/km)	Euro 0	Euro 1	Euro 2	Euro 3	Euro 4	Euro 5	Euro 6c	Euro 6d
Motorcycle/moped (125cc)	91	73	66	53	53	53		
Motorcycle (250cc - 750cc)	134	118	109	187	144	144		
Motorcycle (750cc)	152	148	146	186	144	144		
Petrol car	228	224	220	219	224	216	210	213
Diesel car	234	209	214	204	201	196	193	193

PM2.5 (g/km)	Euro 0	Euro 1	Euro 2	Euro 3	Euro 4	Euro 5	Euro 6c	Euro 6d
Motorcycle/moped (125cc)	0.03	0.03	0.01	0.01	0.01	0.01		
Motorcycle (250cc - 750cc)	0.03	0.03	0.01	0.01	0.01	0.01		
Motorcycle (750cc)	0.03	0.03	0.01	0.01	0.01	0.01		
Petrol car	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Diesel car	0.30	0.09	0.08	0.06	0.06	0.02	0.02	0.02

PM10 (g/km)	Euro 0	Euro 1	Euro 2	Euro 3	Euro 4	Euro 5	Euro 6c	Euro 6d
Motorcycle/moped (125cc)	0.03	0.03	0.02	0.02	0.02	0.02		
Motorcycle (250cc - 750cc)	0.03	0.03	0.02	0.02	0.02	0.02		
Motorcycle (750cc)	0.03	0.03	0.02	0.02	0.02	0.02		
Petrol car	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Diesel car	0.31	0.11	0.09	0.07	0.07	0.03	0.03	0.03

NOx (g/km)	Euro 0	Euro 1	Euro 2	Euro 3	Euro 4	Euro 5	Euro 6c	Euro 6d
Motorcycle/moped (125cc)	0.24	0.26	0.21	0.07	0.03	0.02		
Motorcycle (250cc - 750cc)	0.22	0.22	0.07	0.06	0.02	0.01		
Motorcycle (750cc)	0.12	0.13	0.10	0.06	0.02	0.01		
Petrol car	1.59	0.40	0.25	0.11	0.09	0.05	0.05	0.05
Diesel car	0.72	0.77	0.83	0.84	0.69	0.65	0.58	0.06

Source: COPERT


Kawasaki
VERSYS

Fig. 92: Monetary value of emissions[69]

	CO_2	$PM_{2.5}$	PM_{10}	NO_x
€/kg of emissions	0.10	127.37	23.09	13.05

Source: European Commission

It is possible to place a monetary value on the negative impacts of these emissions. The European Commission's 'Handbook on the external costs of transport' (2019) place a value of €0.10 per kg of CO_2 emissions (equivalent to €104 per tonne). The NOx and PM emissions that are emitted in much lower quantities have a higher value based on their health and environmental impact (Fig. 92).

We apply these emissions to commuters in Rome, and then Europe, to aggregate the environmental benefits of motorcycles, using vehicle fleet data split by Emission Standard class for both. It must be noted that this analysis assumes the car and motorcycle are occupied only by the driver and have no passengers.[70] Also, this analysis does not capture the small number of Euro 5 standard motorcycles that were in the fleet in 2019.

We estimate the value of emissions saved per commuter switching from car to a motorcycle would have been €50 in Rome per year (Fig. 93). This is driven mostly by the lower cost of CO_2 emissions (€28) and NOx emissions (€15) associated with motorcycles. Because the average commute across the EU-27 countries and UK is longer, switching to travelling to work by motorcycle rather than car would result in an equivalent figure of €53 per annum in emission savings.

Fig. 93: Estimated individual emission savings from switching from car to motorcycle for commuting, 2019

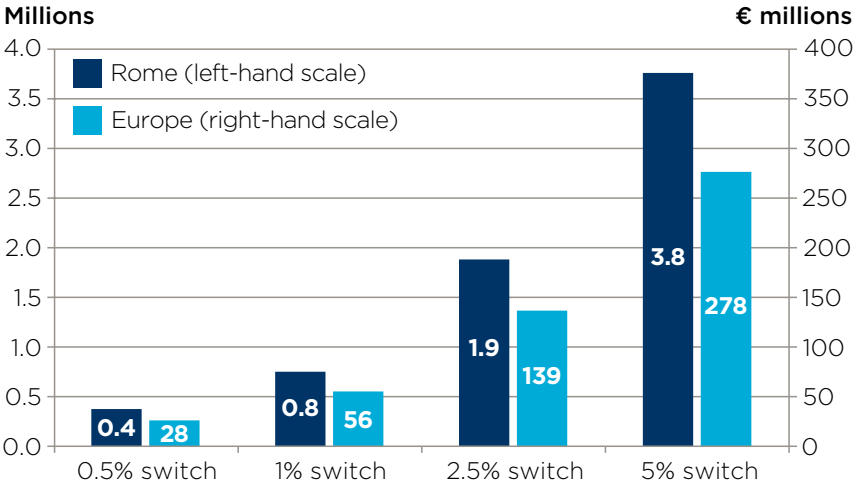
		Distance per commute (km)	Distance per annum (km)	Average emissions (weighted by Emission class) per annum, kg (€ value)				Value of emissions per annum
				CO_2	$PM_{2.5}$	PM_{10}	NO_x	
Rome	Car (average)	6.7	3,228	683 (€68)	0.1 (€12)	0.14 (€3)	1.5 (€20)	€103
	Motorcycle (average)	5.9	2,847	404 (€40)	0.05 (€7)	0.07 (€2)	0.36 (€5)	€53
	Difference	0.8	381	-279 (€-28)	-0.04 (€-6)	-0.07 (€-2)	-1.14 (€-15)	-€50
Europe	Car (average)	7.8	3,728	782 (€78)	0.11 (€14)	0.16 (€4)	1.44 (€19)	€ 114
	Motorcycle (average)	6.9	3,325	481 (€48)	0.06 (€7)	0.08 (€2)	0.37 (€5)	€ 62
	Difference	0.8	404	-301 (€-30)	-0.05 (€-7)	-0.08 (€-2)	-1.07 (€-14)	-€ 53

Source: EMISIA, Oxford Economics

[69] These values are in 2019 prices and are the average values across the EU28 countries. The value of CO2 emissions is the European Commission's central estimate for the emissions' short-and-medium run cost. The PM2.5 and NOx costs are the average 'city' cost (as supposed to 'urban').

[70] This analysis makes the simplifying assumption that vehicles, both cars and motorcycles, are not electric.

Fig. 94: The value of total emission savings arising from additional motorcycle commuters in Rome, and the EU27 and UK, 2019



Source: Oxford Economics

If these emission savings are scaled up across all the commuters in Rome, for the scenarios used above, then the environmental benefits are significant. Up to €3.8 million worth of greenhouse gas emissions could have been saved under the scenario that 5% of car users switched to commuting by motorcycle in the city (Fig. 94).

If these results are extended to all the commuters in the EU27 and UK, then the value of emission savings vary from €28 million per annum under the 0.5% scenario, up to €278 million under the 5% scenario.

Greenhouse gas emissions need to be cut significantly in order to meet EU targets in 2030 and then 2050.[71]

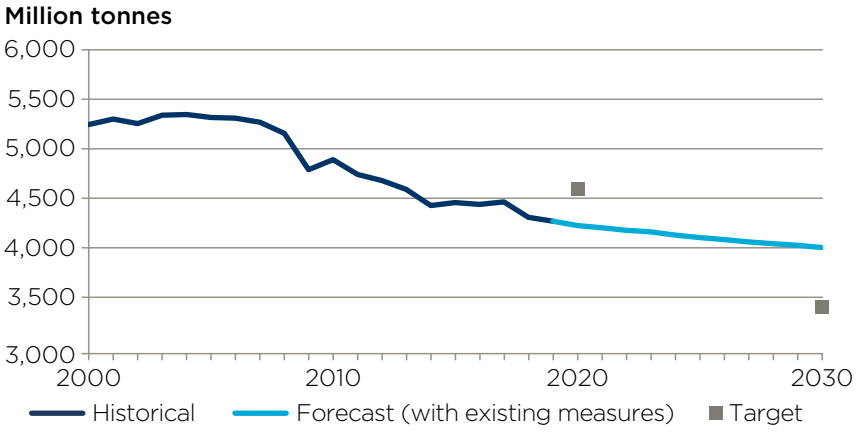
Emissions in the EU have fallen to an estimated 4.3 million tonnes of CO_2 equivalent in 2019, which is already below the 2020 target (Fig. 95). But the current forecasts from the European Environment Agency suggest the EU will need to accelerate its reduction in greenhouse gas emissions in order to meet its upcoming target in 2030.

Meanwhile emissions from the transport sector (excluding international aviation and shipping) have been rising: *"GHG emissions decreased in the majority of sectors between 1990 and 2017, with the exception of transport. […] Emissions from the transport sector, which is the largest contributor to GHG emissions under the Effort Sharing legislation, have been increasing continuously since 2014."*[72] The reduced emissions of motorcycles will help the EU approach its targets while electric vehicles and technology progress.

"The environmental costs of using a motorcycle for commuting are on average €62 per year, compared to €114 for a car.

If 5% of European car drivers commuting switched to motorcycles, these economic costs would decrease by about €278 million."

Fig. 95: Greenhouse gas emissions (CO_2 equivalent) in the EU



Source: European Environmental Agency

[71] The EEA's greenhouse gas emissions target for 2020 was 4,576 million tonnes of CO2 equivalent (20% below 1990 levels). The 2030 target is 3,432 million tonnes (40% below 1990 levels) and two targets exist for 2050: 1,144 million tonnes (80% below 1990 levels) and 286 million tonnes (95% below 1990 levels).

[72] European Environmental Agency, *Total greenhouse gas emission trends and projections in Europe* (https://www.eea.europa.eu/data-and-maps/indicators/greenhouse-gas-emission-trends-6/assessment-3), (2020).

8.5 CONCLUDING REMARKS

This chapter highlights the additional benefits of operating a motorcycle in terms of time, money and emissions saved. It does not consider the subsequent benefits arising to all road users as congestion is reduced by more travellers using motorcycles. Traffic congestion generates higher GHG emissions. According to the European Green Paper on Urban Mobility, some 40% of all road transports' CO_2 emissions are generated in urban areas. The report goes on to say that: *"Despite progress in car technology the growth in traffic and the 'stop-go' nature of driving in urban areas means that cities are a major, and growing, source of CO2 emissions which contribute to climate change."*[73]

Motorcycles reduce traffic congestion—traffic speeds would be expected to change as more people switch out of cars—so there would also be indirect economic and environmental benefits. A report studying the traffic on the Leuven-Brussels motorway (Carlier, 2011) suggested that replacing 10% of private cars with motorcycles would reduce the total time lost to traffic for all vehicles by 40%.[74]

Motorcycles are also easier to park which saves time compared to a car, and also emissions, as additional travel to search for a parking space is not required. This also is not considered in this analysis. A report from Economica (2015) estimated that the parking space search costs of around €2.5 million per annum would be saved if 54,500 Austrians commuters switched from using cars to motorcycles.[75]



[73] European Commission, *Green Paper: Towards a new culture for urban mobility*, (2007).
[74] Carlier, K, *Commuting by motorcycle: impact analysis*, (2011).
[75] Economica, *Die Ökonomische Bedeutung der Motorradwirtschaft in Österreich*, (2014).

APPENDIX 1: DETAILED DESCRIPTION OF L-CATEGORY VEHICLES

LIGHT-TWO WHEEL POWERED VEHICLES (L1E)



Characteristics

- Engine capacity ≤ 50 cm^3 if a positive ignition internal combustion engine forms part of the vehicle's propulsion configuration

Performance

- Maximum design vehicle speed ≤ 45 km/h
- Maximum continuous rated or net power (1) ≤ 4,000 W

Subcategories

Type	Characteristics	Performance	Comments
Powered-cycles (L1eA)	Cycles designed to pedal equipped with an auxiliary propulsion with the primary aim to aid pedalling	Output of auxiliary propulsion is cut off at a vehicle speed ≤ 25 km/h Maximum continuous rated or net power (1) ≤ 1,000 W	Some powered three- or four-wheel cycles may be classified as being technically equivalent to a two-wheel L1e-A vehicle
Light two-wheel powered vehicle (L1eB)	Any other vehicle of the L1e category that cannot be classified as an L1e-A vehicle		

Source: ACEM

THREE-WHEEL MOPEDS (L2E)



Characteristics

- 3 wheels.[76] 2 seats maximum
- Up to 50 cc if positive ignition combustion engine or
- Up to 500 cc if compression ignition engine
- Mass in running order ≤ 270 kg

Performance

- Maximum speed 45 km/h
- 4 kW power limit, irrespective of propulsion type

Subcategories

Type	Characteristics	Performance	Comments
Three-wheel moped for passenger transport (L2e-P)	L2e vehicle other than those complying with the classification criteria for a L2e-U vehicle		
Three-wheel moped for utility purposes (L2e-U)	Exclusively designed for the carriage of goods with an open or enclosed, virtually even and horizontal loading bed		

Source: ACEM

[76] 4 wheelers are permitted in this category, but only in the case of "twinned wheel" vehicles, where two wheels mounted on the same axle have a distance between the centres of their areas of contact with the ground equal to, or less than, 460 mm.

TWO-WHEEL MOTORCYCLES (L3E)



Characteristics

- 2 wheels[77]
- Vehicles that cannot be classified as category L1e

Performance

- 11 kW power maximum
- Power-to-weight ratio of up to 0.1 kW/kg

Subcategories

Type	Characteristics	Performance	Comments
Low-performance motorcycles (L3e-A1)	Engine capacity ≤ 125 cm^3	Maximum continuous rated or net power ≤ 11 kW Power-to-weight ratio ≤ 0.1 kW/kg	
Medium-performance motorcycles (L3e-A2)	L3e vehicle that cannot be classified as an L3e-A1 vehicle	Maximum continuous rated or net power ≤ 35 kW Power-to-weight ratio ≤ 0.2 kW/kg and not derived from a vehicle equipped with an engine of more than double its power	
High-performance motorcycles (L3e-A3)	Any other L3e vehicle that cannot be classified as an L3e-A1 or L3e-A2 vehicle		

Source: ACEM

TWO-WHEEL MOTORCYCLES WITH SIDE CAR (L4E)



Characteristics

- 3 wheels
- As L3e plus sidecar
- With a maximum of 4 seating positions including the driver on the motorcycle with side car
- A maximum of 2 seating positions for passengers in the side car

Performance

- Same limits as those applicable to L3e vehicles

[77] 4 wheelers are permitted in this category, but only in the case of "twinned wheel" vehicles, where two wheels mounted on the same axle have a distance between the centres of their areas of contact with the ground equal to, or less than, 460 mm.

POWERED TRICYCLES (L5E)



Characteristics

- 3 wheels.[78] Maximum 5 seats (2 for commercial trikes)
- Cannot be classified as an L2e vehicle
- Mass in running order of up to 1,000 kg

Performance

- Maximum speed >45 km/h (unlimited) and/or maximum power > 4 kW (unlimited)

Subcategories

Type	Characteristics	Performance	Comments
Tricycles (L5e-A)	L5e vehicle other than those complying with the specific classification criteria for a L5e-B vehicle		Maximum, of 5 seating positions, including the seating position of the driver
Commercial tricycles (L5e-B)	Designed exclusively for the carriage of goods with an open or enclosed, virtually even and horizontal loading bed		Maximum of 2 seating positions, including the seating position of the driver

Source: ACEM

LIGHT QUADRICYCLES (L6E)



Characteristics

- 4 wheels. 2 seats maximum
- Mass in running order up to 425 kg
- Max engine capacity 50 cc (positive ignition) or 500 cc (compression ignition)

Performance

- Max speed 45 km/h
- Maximum power 4kW

Subcategories

Type	Characteristics	Performance	Comments
Light on-road quad (L6e-A)	L6e vehicle not complying with the specific classification criteria for a L6e-B vehicle	Maximum continuous rated or net power ≤ 4,000 W	
Light quadri-mobile (L6e-B)	Enclosed driving and passenger compartment accessible by maximum three sides	Continuous rated or net power ≤ 6,000 W	
Light quadri-mobile for passenger transport (L6e-BP)	L6e-B vehicle mainly designed for passenger transport		
Light quadri-mobile for utility purposes (L6e-BU)	Exclusively designed for the carriage of goods with an open or enclosed, virtually even and horizontal loading bed		

Source: ACEM

[78] 4 wheelers are permitted in this category, but only in the case of "twinned wheel" vehicles, where two wheels mounted on the same axle have a distance between the centres of their areas of contact with the ground equal to, or less than, 460 mm.

HEAVY QUADRICYCLES (L7E)



Characteristics

- 4 wheels
- L7e vehicle that cannot be classified as a L6e vehicle
- Mass in running order ≤ 450 kg (for transport of passengers)
- Mass in running order ≤ 600 kg (for transport of goods)

Performance

- See subcategories

Subcategories

Type	Characteristics	Performance	Comments
Heavy on-road quad (L7e-A)	L7e vehicle designed for the transport of passengers only and not complying with the specific classification criteria for a L7e-B or a L7e-C	Maximum continuous rated or net power ≤ 15 kW	Within this category we find A1 heavy on-road quads (L7e-A1) and A2 heavy on-road quad (L7e-A2) However, there are very few L7e in the market
Heavy all terrain quad (L7e-B)	L7e vehicle not complying with the specific classification criteria for a L7e-C vehicle and ground clearance ≥ 180 mm		Within this category we find all terrain quads (L7e-B1), side-by-side buggies (L7e-B2) and heavy quadri-mobile (L7e-C). These vehicles are not represented by ACEM
Heavy quadri-mobile (L7e-C)	L7e vehicles not complying with the specific classification criteria for a L7e-B vehicle Enclosed driving and passenger compartment accessible via maximum three sides	Maximum continuous rated or net power ≤ 15 kW Maximum design vehicle speed ≤ 90 km/h	Within this category we find heavy quadri-mobile for passenger transport (L7e-CP) and heavy quadri-mobile for utility purposes (L7e-CU)

Source: ACEM

APPENDIX 2: THE IMPACT OF COVID-19 ON MOTORCYCLE MANUFACTURING AND TRADING

This appendix presents evidence on the impact of the Covid pandemic on motorcycle manufacturing and trading in Europe, helped by a survey of ACEM's manufacturing company members carried out in October as well as other information. We first examine economic trends in 2020, then briefly set out some industry views on the sector's future prospects, before drawing conclusions.

ECONOMIC TRENDS IN 2020

This section examines trends shown by three datasets in turn: the survey of ACEM members, Eurostat data on manufacturing production, and Eurostat data on the turnover of motorcycle distributors and repairers. Four key conclusions are then drawn out.

Trends in 2020 indicated by the ACEM manufacturing company survey

Responses to the survey of ACEM's manufacturing members were overseen by senior company executives with a strong oversight of their respective businesses' European motorcycle-related activities. Filled-in questionnaires were received from member businesses accounting for broadly 70% of the European employment of major motorcycle manufacturing corporations. The survey covers all of the companies' European-based motorcycle-related operations, including research and development (R&D), trading, and headquarters (HQ) functions, as well as manufacturing activity itself.

Questions were asked about expected out-turns for 2020 compared with 2019, with respondents asked to choose from a set of percentage change bands. Fig. 96 sets out the results for the questions on Europe-wide activity, pointing to the wide range of company experiences during the year, while also giving an indication of trends across the sector as a whole.

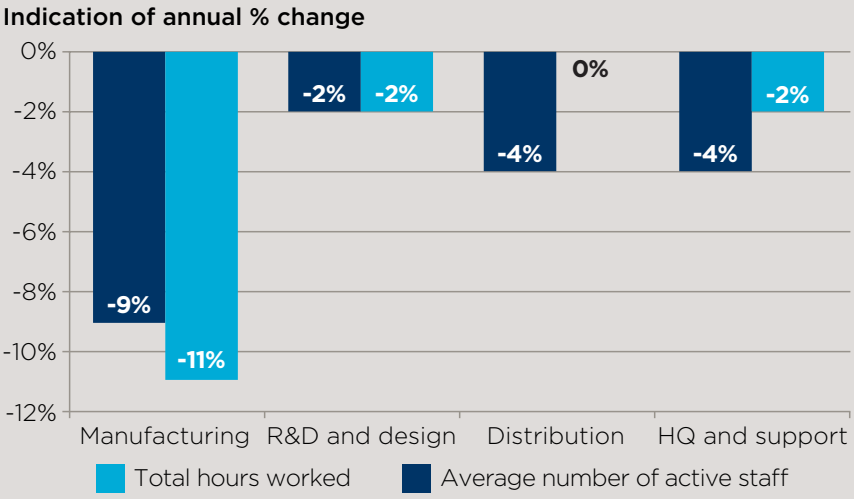
Fig. 96: ACEM member survey results: overview of trends in 2020

Estimated % change, 2020 versus 2019, EU-27 plus UK	Percentage of companies responding to each question				
	Total units produced, manufacturing	Turnover from distributive activities	Turnover from all activities	Total hours worked	Average number of active staff
Up by 5%-19%	-	11%	11%	-	-
Up by 1%-4%	-	-	-	11%	11%
Broadly unchanged	17%	22%	22%	33%	56%
Down by 1%-4%	33%	22%	22%	11%	22%
Down by 5%-19%	50%	33%	33%	33%	11%
Down by 20%-39%	-	11%	11%	11%	-
Total	**100%**	**100%**	**100%**	**100%**	**100%**
Indication of overall % change, 2020 v. 2019[79]	**-7%**	**-7%**	**-7%**	**-7%**	**-2%**

Source: ACEM

[79] Each company given equal weight. Mid-point of each band taken.

Fig. 97: ACEM member survey results: change in work patterns by activity type



Source: ACEM

On this basis, the number of units manufactured, turnover from trading activity, turnover from all production and trading operations, and total annual hours worked, are all on course to fall by broadly 7% between 2019 and 2020. However, the average number of staff actively working has not been cut in line with the number of hours worked, with an indicative annual decline in worker headcount of just 2%. This suggests a preference, where possible, for temporarily reducing hours worked per staff member over standing some individuals down altogether, or making some redundant.

Questions were also asked about work patterns for each activity type. Here, hours worked in R&D, trading and HQ functions were all down only modestly, with active staff headcount down by even less (see Fig. 97)—in keeping with the indicative result for the sector as a whole. But the nature of the manufacturing function means that many factories had to cease work completely for a while, resulting in more significant reductions in both hours worked and active staff headcount in that case.

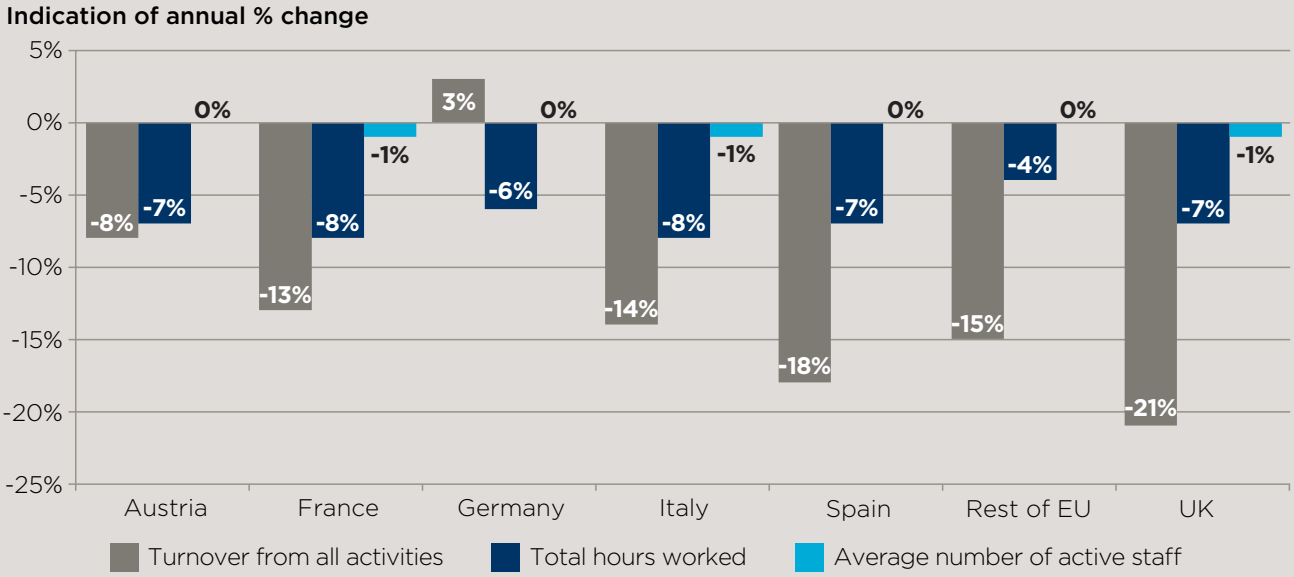
This fits with separately-collated ACEM data from April, showing that only one ACEM member factory in the EU-27 and UK was then known to be operating, with 17 closed (see Fig. 98). As the table also shows, many R&D and head office locations were shut too at that time, but proportionately fewer, and with remote working playing a more significant role in those cases than in the case of factory work.

Fig. 98: Status of ACEM members' site operations in April 2020

	Factories	R&D centres	Head offices
Operating as usual	1	1	2
Operating at lower level	0	4	1
Closed but some teleworking	5	5	8
Closed, no teleworking	12	5	1
Total known status	18	15	12
Unknown status	5	4	3
All closed sites as % total known	94%	67%	75%
Closed, no teleworking as % total known	67%	33%	8%

Source: ACEM

Fig. 99: ACEM member survey results: change in turnover and work patterns by country



Source: ACEM

The October 2020 survey also asked about trends by country (see Fig. 99). Turnover from all manufacturing company activities is expected to grow slightly in Germany in 2020, in contrast to clear falls across the rest of Europe. But there has been much less variation in work patterns by location, with each of the six nations shown, and the 'rest of EU' grouping, experiencing falls in aggregate hours worked of between 4% and 8%, and all seeing only an insignificant fall in active staff headcount.

Official data on motorcycle manufacturing production

Eurostat publishes data on the volume of production of motorcycle manufacturing firms, for the EU-27 and some countries (see Fig. 100).[80] These show a substantial drop in production across the Union, and in each of France, Germany, and Italy, in March and April 2020, but with output rebounding to surpass pre-pandemic levels by the summer. At the worst point in April, activity in the EU-27 was 94% lower than in February, with output in France and Germany down by 83% and 75% respectively, and no activity at all in Italy. But in November, total EU-27 production was 11% higher than in February, with output up by 96% in Germany and 14% in France, but down by 3% in Italy, on that basis.

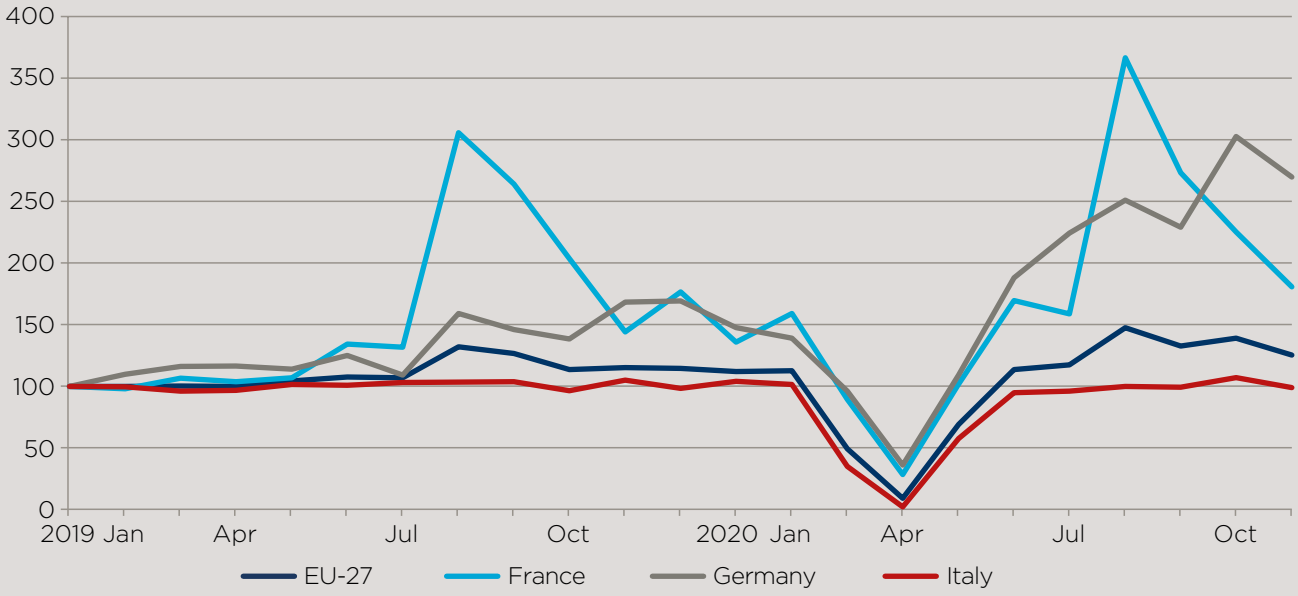
Fig. 101 shows the same dataset, comparing quarterly levels in 2020 with those of a year earlier. This includes projections for fourth quarter (i.e. October-December), based on the data for October and November. On this basis, EU-27 volumes would be around 5% lower in 2020 than in 2019, with quite significant rises seen in Germany (+46%) and France (+12%), but a clear decline in Italy (-17%).

To put this in perspective, Fig. 102 shows how, on the same basis, total annual EU-wide production fell by significantly more in the case of other motor vehicles (-21%), all transport equipment (-20%), EU manufacturing in total (-8%), and a range of other major manufacturing industries.

[80] Manufacturers of motorcycles and motorcycle parts. Excludes separate trading, R&D, and HQ subsidiaries.

Fig. 100: Level of motorcycle manufacturing production, January 2019-November 2020

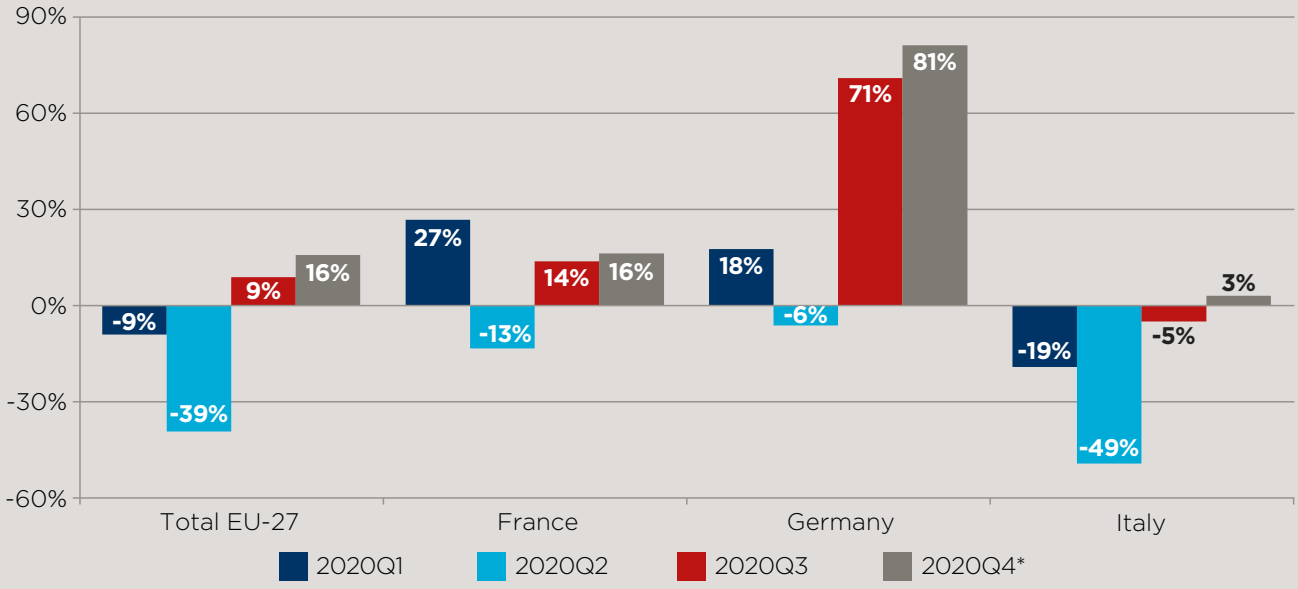
Index, Jan 2019 = 100



Source: Eurostat

Fig. 101: Motorcycle manufacturing production: change versus a year earlier

% change on a year earlier

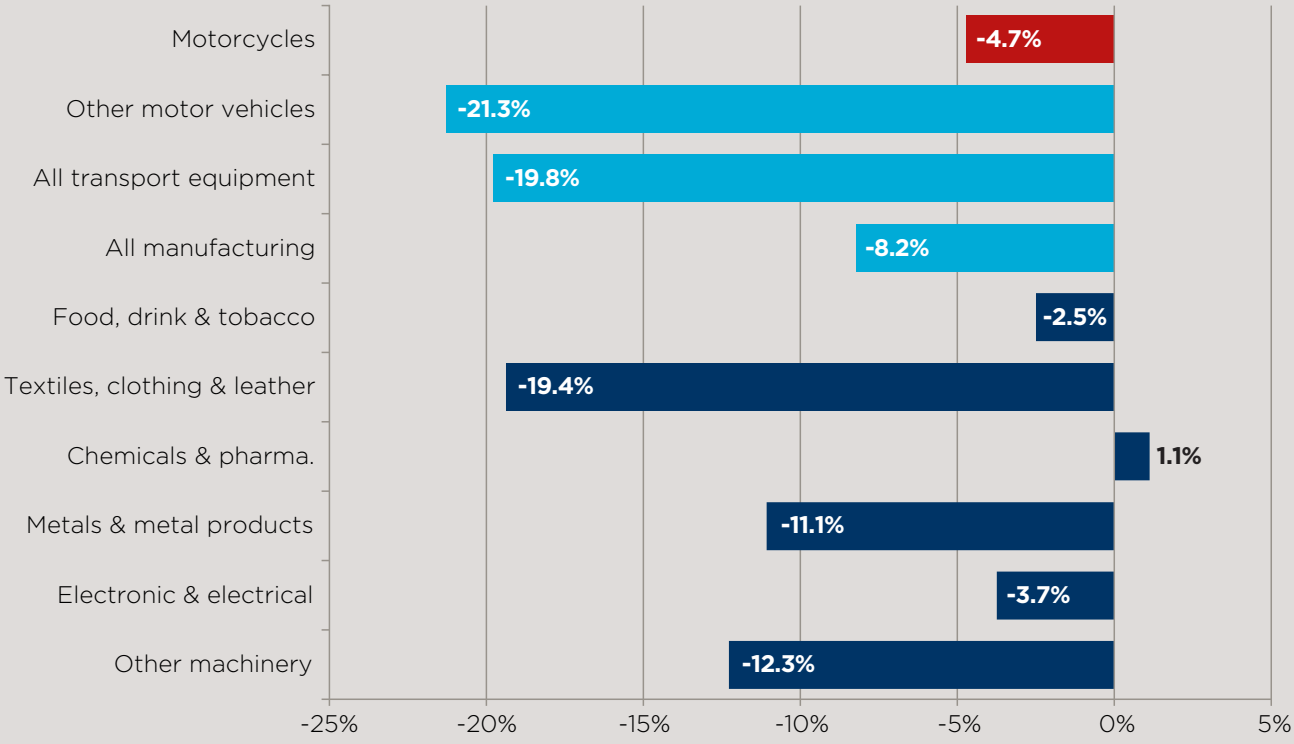


Source: Eurostat, Oxford Economics

*Estimates based on data for October and November.

Fig. 102: Annual change in EU-27 production in 2020: motorcycles versus other manufacturing

Projected annual % change*



Source: Eurostat, Oxford Economics

*Estimates based on monthly data to November.

Official data on turnover in the motorcycle distribution and repair industry

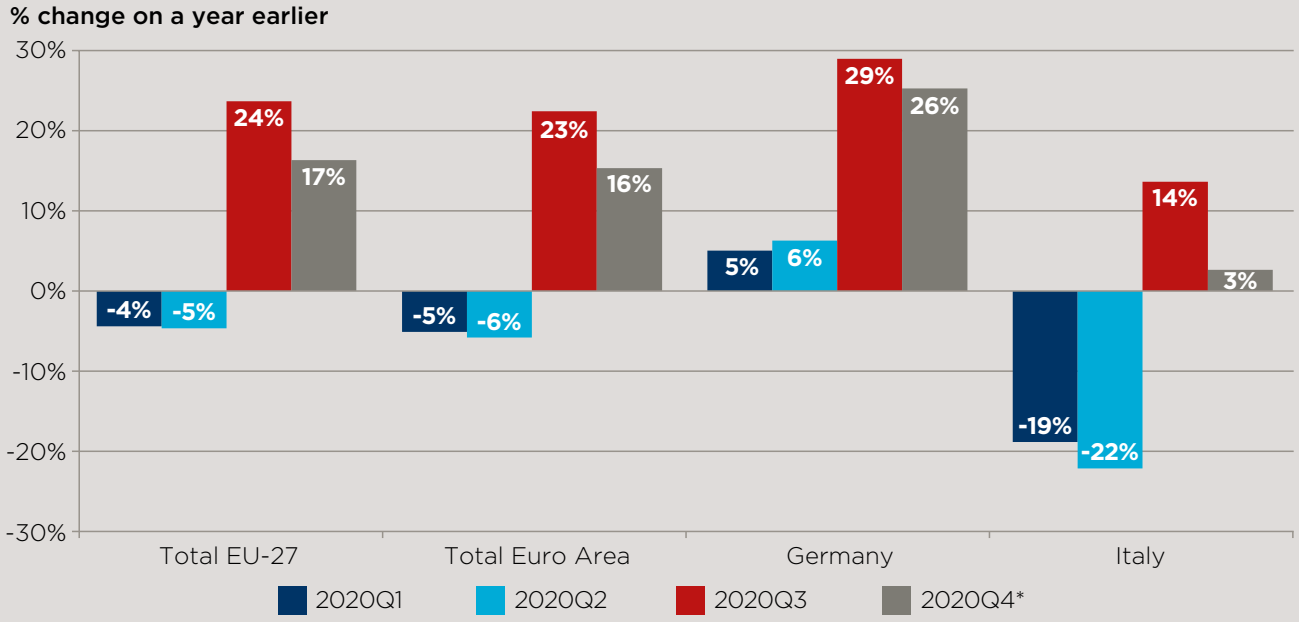
Eurostat also publishes limited data on turnover in the motorcycle sale and repair sector.[81] Across the EU-27, these sales were down on year-earlier levels in the first six months of 2020, but revived in the July-September quarter to stand 24% higher on an annual basis, with values up by 29% in Germany and 14% in Italy (see Fig. 103). Taking into account partial data for October, these sales are projected to be 8% higher in 2020 in 2019, with 17% growth in Germany but a 6% decline in Italy.

As Fig. 104 shows, this increase in turnover in the motorcycle sale and repair sector, for 2020 as a whole, contrasts with the more negative experience of Europe's trading and non-trading services more generally.[82] In most of those sectors, turnover was still lower in the third (July-September) quarter than a year earlier, despite sharp recoveries from low-points earlier in 2020, with values for 2020 as a whole projected to fall short of those seen in 2019.

More specifically, turnover from the sale and repair of all motor vehicles is set to be 8% lower in 2020 than 2019, with total wholesale and retail sector turnover down by 3%, and turnover across the other services activities down by 10% in aggregate—with hotels and catering sales down by 35%.

[81] This includes the trading arms of motorcycle manufacturing corporations, as well as independent operators.
[82] Services for which this data are collected, i.e. excluding finance, real estate, government, health, education, and cultural services. 'Professional services' include legal work, accountancy, consultancy, research, architecture, and advertising, while 'business support' includes equipment rental, employment agencies, cleaning, and security.

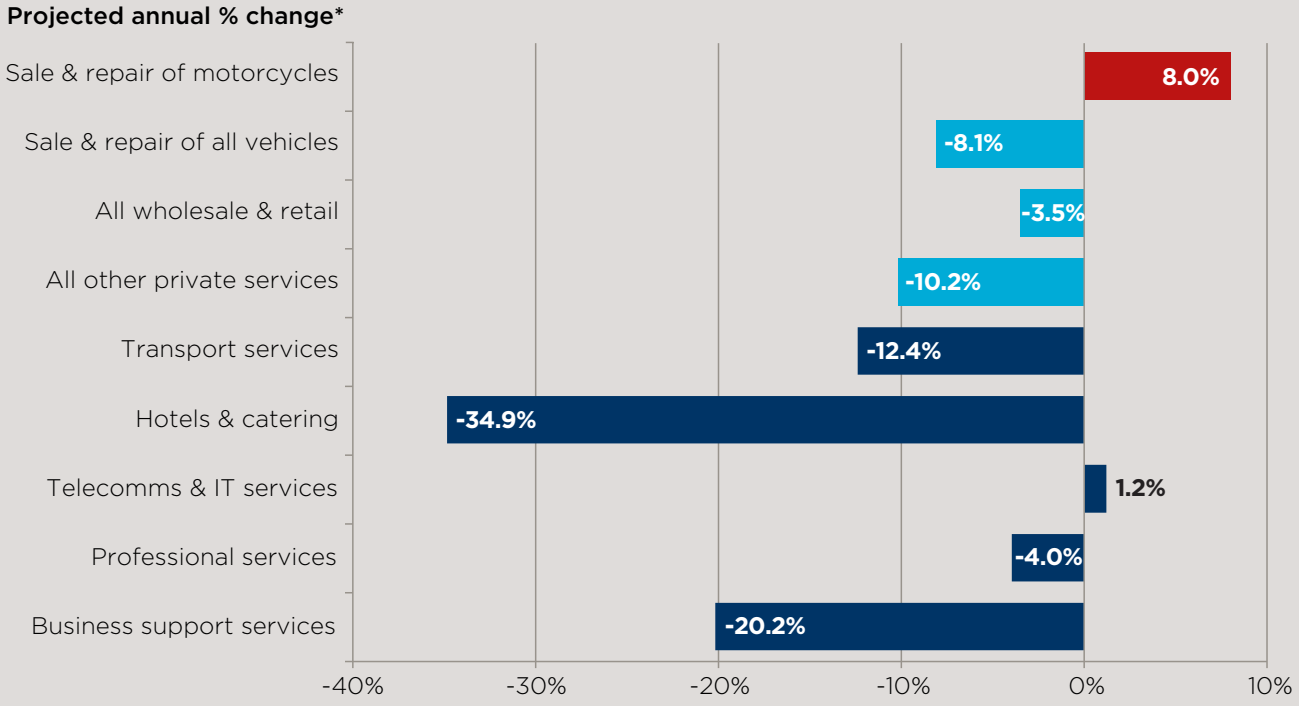
Fig. 103: Motorcycle distribution and repair industry turnover: change versus a year earlier



Source: Eurostat, Oxford Economics

*Estimates. Only data is for October for Germany.

Fig. 104: Annual change in the turnover of EU trading and non-trading services sectors



Source: Eurostat, Oxford Economics

*Includes Q4 estimates based on partial data for Oct & Nov.

Key conclusions from the data on developments in 2020

Fig. 105 pulls together the key evidence from the survey of ACEM's manufacturing company members, and official data on motorcycle manufacturing and distribution. Four clear conclusions can be made:

- While there is some uncertainty about the precise scale of the downturn affecting the sector, with the official data painting a more positive picture of trends in turnover than the ACEM member survey, the overall out-turn for 2020 is clearly on course to be better than that of many other European manufacturing and services industries, helped by a strong rebound in sales and activity in the late spring and early summer.[83]
- The sector has fared much better in Germany than across Europe as a whole, while the Italian industry has been badly affected relative to that average.
- Amongst the major motorcycle manufacturing companies, the interruption to factory work was significant, but work in the R&D, trading, and HQ functions held up relatively well.
- Amongst those firms, active staff headcount was protected, with hours per head temporarily cut in preference to that, unless (as with factory shutdowns) that option was not available.

Fig. 105: Overview of survey-based and Eurostat-based indications of trends in 2020

Indicative % change, 2020 v. 2019	EU-27[84]	Germany	Italy
Manufacturing production based on ACEM survey	-7%	-	-
Manufacturing production based on Eurostat data	-5%	+46%	-17%
Turnover from manufacturers' production and trading activity, based on ACEM survey	-7%	+3%	-14%
Turnover from independent and manufacturers' trading and repair activity, based on Eurostat data	+8%	+17%	-6%
Further indicators from the ACEM survey:			
Total hours worked, manufacturing function	-9%	-	-
Worker headcount, manufacturing function	-11%	-	-
Total hours worked, all manufacturing company functions[85]	-7%	-6%	-8%
Worker headcount, all manufacturing company functions[85]	-2%	0%	-1%

Source: ACEM, Eurostat

[83] These differences may be explained by sector coverage. The manufacture and sale of complete new motorcycles is well represented in the ACEM survey, but maintenance and repair work, and the distribution of spare parts—which may well have held up better—less so. Also, the UK, which appears to have been affected relatively badly, is included in the ACEM member survey, but excluded from the available Eurostat figures.
[84] EU-27 plus UK for the ACEM survey.
[85] Manufacturing, R&D, trading and HQ functions.

INDUSTRY EXPECTATIONS ABOUT THE SECTOR'S FUTURE

The survey of ACEM members also asked about the expected impact of Covid on the industry's medium-to-long-term prospects. Asked whether motorcycle purchases would be clearly higher, about the same, or clearly lower than otherwise, looking out on a three-to-10 year horizon:

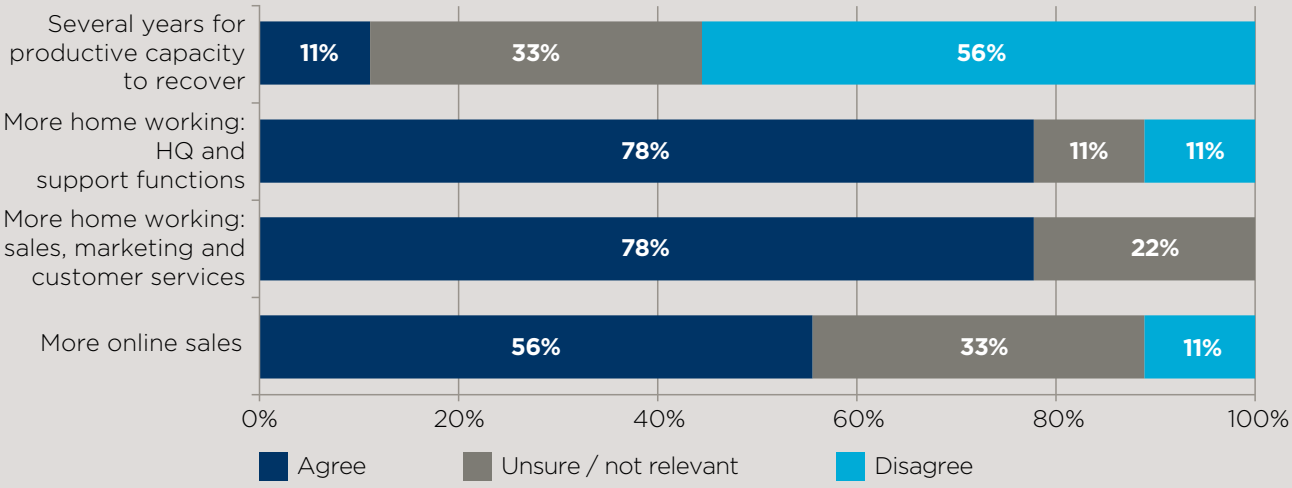
- There was a unanimous view that purchases by customers based in Europe would be essentially unaffected. This holds for each of four dimensions asked about: purchases of motorcycles of any kind; purchases of motorcycles made anywhere in the world by the respondent's own company; purchases of motorcycles of any kind made in Europe; and purchases of motorcycles made in Europe by the respondent's own company.
- There was also a general view that purchases by customers based outside of Europe would also be unaffected, albeit with some 'dissenting' views (both 'higher' and 'lower').

Other survey questions, however, revealed that there was no consensus on precisely when demand would get back to 'normal' levels, nor on the issue of whether Covid would have a positive, neutral, or negative impact (at the margin) on motorcycle use in the medium-to-longer term.

On the other hand, only 11% of respondents agreed with the proposal that it would take several years for the industry's productive capacity to recover, while 56% disagreed with that notion (see Fig. 106). There was also a clear view that Covid will accelerate the trend towards more home working in the case of HQ and support function staff, as well as sales, marketing and customer services staff, with the shift for the latter group associated with an acceleration in the trend towards online sales.

Fig. 106: ACEM member survey results: expectations for industry capacity and ways of working

% of respondents



Source: ACEM

CONCLUDING NARRATIVE

Motorcycle manufacturing activity in Europe was interrupted in a substantial way at the height of the pandemic in March-April 2020. The particularly severe restrictions on working life that had to be imposed at that time in Italy—then the epicentre of the pandemic in Europe and also the single most important European location for motorcycle production—were an important driver of that trend. However, production also fell quite substantially, for a brief period, across the rest of the continent.

The demand for new motorcycles, as reflected in the turnover of motorcycle trading businesses and subsidiaries, was also squeezed at that time. In line with the impact of Covid-19 on economic activity more generally, Italy was again hit more severely than the average, while the German market was less badly affected.

However, motorcycle sales and production both recovered strongly across the continent in the late spring and early summer. As a result, sales and production in 2020, across the European sector as a whole—including independent distributors, repairers, and parts manufacturers—looks to be on course to match, or nearly match, the levels seen in 2019. With Germany leading that recovery, sales and production there are set to be higher in 2020 than in 2019, though activity in Italy will be lower.

Looking ahead, there is a widespread expectation in the industry that demand for new motorcycles will return, sooner or later, to the kind of levels that would have been seen in the absence of Covid. Here, even if overall transport use is adversely affected by virus-related concerns, and the associated shift away from work-related commuting, it seems logical that motorcycle use will be less badly affected than the use of public transport and other shared vehicles.

Turning to the specific operations of the ACEM members, the interruption in manufacturing production means that both the total number of hours worked in factory activities, and the average number of staff actively involved in those operations, will fall in 2020. However, the companies responded to Covid in such a way as to ensure that they are in a good position for the future, by:

- Largely maintaining the volume of work (in terms of hours) undertaken on R&D and design, to keep the future 'pipeline' of new, innovative, efficient, and attractive products on course.
- Largely maintaining the work undertaken by trading subsidiary staff, despite the dip in sales, to maintain customer services and relations, and keep up marketing activities.
- Largely maintaining the work undertaken at HQ locations, to oversee operations, support on-site, remote, and furloughed staff, and continue to develop corporate plans and strategy.
- Put in place the staff protocols and infrastructure necessary to support widespread and efficient homeworking, to help keep all of the above functions going.

- Ensuring that staff skills are maintained and developed, rather than eroded, by maintaining total hours worked as far as possible.
- Where necessary and possible, reducing hours worked per staff member, rather than standing some down altogether or making redundancies, to further protect the skills base.

Maintaining the volume of work through the downturn, in these productive ways, should benefit the industry in future. As well as the significant potential returns on the ongoing investment in research and skills, some new ways of working developed of necessity—such as increased remote working and greater online sales—are likely to be kept in place where that would be advantageous.

But the wider European economy should also gain from the industry's protection of employment, and the associated contribution to the continent's skills, knowledge, and tax bases. This partly reflects the nature of the sector's activities and output, and partly the corporate strategies put in place, and can be contrasted with the more negative employment out-turns likely to be seen in many other sectors of business.

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