The Economic and Environmental Impact of the Historic and Classic Motor Industry in the UK

A CEBR Report for HERO-ERA

December 2020

Authorship and acknowledgements

This report has been produced by Cebr, an independent economics and business research consultancy established in 1992. The views expressed herein are those of the authors only and are based upon independent research by them. The main Cebr staff who have worked on this report include Douglas McWilliams, Mike McWilliams and Owen Good.

The report does not necessarily reflect the views of Accedian or HERO-ERA.

London, December 2020

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1. Foreword

One of the UK's greatest assets is its heritage. Historic houses, heritage city centres and a wide range of items that remind us of the past. We were the country of the Industrial Revolution and our industrial heritage is especially important.

Historic and classic vehicles are a major part of that heritage. We estimate that the UK's fleet of classic and historic vehicles is worth £12.6 billion on a very conservative estimate, which makes it the most important single component of the UK's mechanical and industrial heritage.

HERO-ERA have commissioned this report as a major player in the industry because we feel we have an obligation to contribute to the industry by letting the wider public know about what we all do and how it affects them. This is not a "money making" exercise for HERO- ERA – although we commissioned the report, we will make it available for others to use for free.

We have deliberately not just focussed on classic rallying but also attempted to cover all the different aspects of heritage and classic motoring from ownership to restoration to repair to museums to racing to events to owners' clubs as well as rallying. We also look at other aspects – even magazines.

The report shows how the sector contributes to the economy and society.

One of the most important themes of the report is its analysis of the extent to which traditional craftmanship/manufacturing goes into this industry in its different forms. These heritage crafts have a strong intrinsic value and need to be preserved. They are also highly skilled and command a pay premium.

Another is that the sector, because it is highly labour intensive and has a low materials and energy intensity, is much greener than virtually any other type of consumer expenditure. Its carbon footprint per £ spent is less than a sixth of an average consumer basket of spending.

There are three key economic facts in the report, even though we have deliberately made conservative assumptions about the size of the sector:

- The turnover of the whole sector is over £18 billion.
- The contribution to gross value added is nearly £9 billion.
- And 113,000 jobs depend on the sector.

This makes the classic and historic vehicles sector about a fifth of the size of the whole heritage sector, about the same order of magnitude as the whole arts and creative sector and also the whole UK ports sector and roughly twice the size of the Scotch whisky sector. Cebr has a reputation for assessments of this kind which means that we can feel confident that the work is comparable with similar estimates made for other sectors.

No one would suggest that any of those other sectors are disposable and similarly the historic and classic vehicles sector is a highly important sector that should also be cherished.

One of the key virtues of this sector is that it is regionally dispersed. We estimate that only 5% of the sector's activity takes place in London and even this business is often small family-based trading businesses. Most of the sector is based outside city centres in rural areas which might otherwise be left behind by economic change.

We are looking to pool this information. We have been working with or have had information supplied by the Federation of British Historic Vehicle Clubs (FBHVC who look after 500 clubs) and the Royal Automobile Club, along with many others.

Many I commend this report to you.

It's not just for our benefit, but for the benefit of all participants in all facets of classic motoring.

Please pass on the key messages in it so that all those who make or influence decisions, from the government through the media to the general public realise the importance of this great sector and the need to recognise its role, nurture the sector and protect it against unintended consequences of legislation targeted at other objectives.

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2. Introduction and summary

2.1 Introduction

This is a study of the economic impact of classic and historic vehicles. It sets out to measure the contribution of classic and historic vehicles to the UK economy, the environmental profile of the sector, the contribution of the sector to skills in the economy and the sector's contribution to the heritage.

It uses input-output modelling to estimate both the economic and environmental impact of the sector.

Cebr specialises in economic impact studies. In recent years we have carried out a range of studies for sectors including the maritime sector, ports, a range of transport projects, the Royal Navy, the arts and creative sector for the Arts Council, the offshore wind sector, the literary and bookselling sector, the Scotch whisky sector, the Heritage sector for the Historic Houses Association and Historic England and we have made a minor speciality of evaluating the benefits of education and skills, particularly for apprentices.

Since many of these studies are commissioned directly or indirectly by government or by other bodies that wish to influence policy, we go to great lengths to ensure that our research is consistent and comparable and that our metrics are of direct policy relevance.

We were therefore delighted to be commissioned by the historic rallying organisation HERO-ERA to evaluate the economic and social impact of historic and classic vehicles. This report shows the results of this analysis.

We are not the first to look at this and indeed much of our work would not have been possible without pioneering work carried out by others, especially the Federation of British Historic Vehicle Clubs. We have also been helped directly by a range of other bodies, particularly including the Royal Automobile Club, Bicester Heritage and many owners clubs. In addition, a series of meetings arranged by Bicester Heritage have been especially helpful in providing real life experience to match the data calculated using economic models. We are especially grateful to Starter Motor and the Heritage Skills Academy; to Fuzz Townshend's Classic Oils; to Classic Performance Engineering; to the Vintage Car Radiator Company and Kingsbury Racing. Daniel Geoghegan and many of his colleagues, particularly Tiggy Atkinson, have been of special help and also Dominic Taylor Lane of the Association of Heritage Engineers.

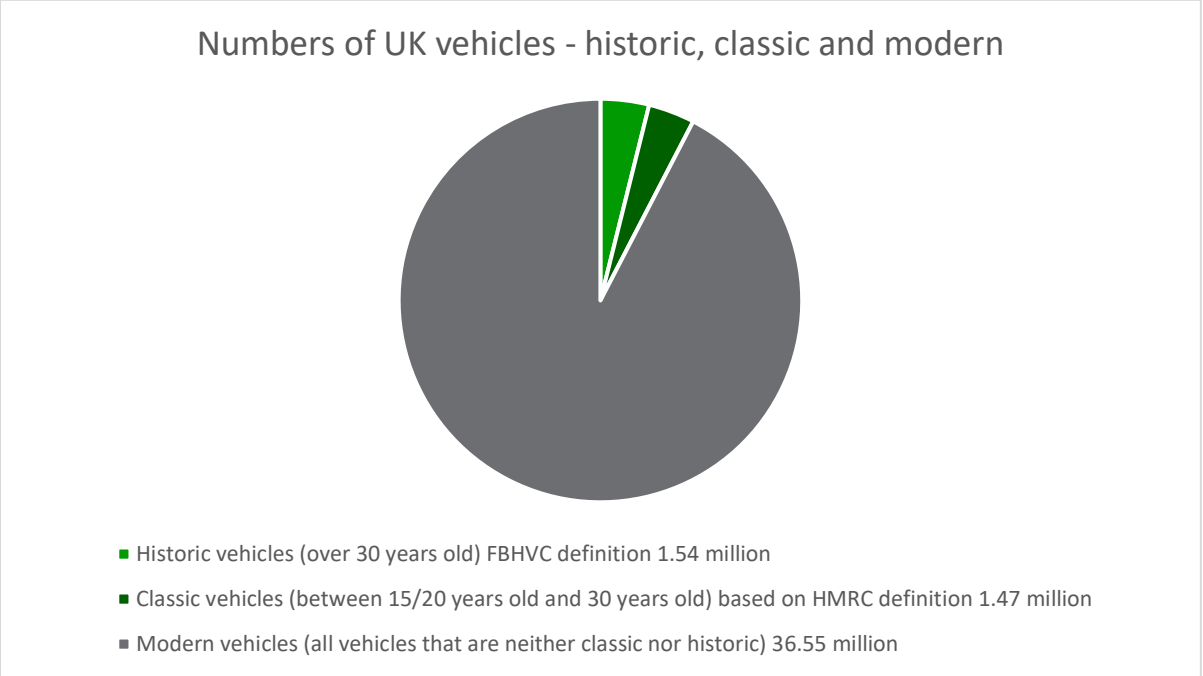
Our normal approach is to use data from the latest complete calendar year. For this report what would have been a standard practice has become a necessity since Covid-19 has so affected the data for 2020 as to make it atypical. Figures in this report are for 2019 unless stated otherwise.

2.2 Summary

Our main conclusions are:

1) FBHVC estimate that there are 1.54 million historic vehicles in the UK. Cebr estimate that there are in addition 1.47 million classic vehicles that satisfy the HMRC definition of classic vehicle, giving a total of 3.01 million classic and historic vehicles.

Figure 1 Numbers of vehicles in the UK by age



2) The UK historic car sector has a much bigger economic footprint than most people imagine. Once all related sectors are considered, the aggregate turnover of the sector is £18.3 billion, though this measure allows for some double counting.

3) For every £1 in turnover directly generated by firms in the sector, a further £1.22 of turnover is supported through the supply-chain and wider-spending impacts which are discussed in the report.

4) In total the industry supports £8.7 billion per annum of aggregate Gross Value Added (GVA) to the UK (roughly its contribution to Gross Domestic Product). This measure takes out any double counting and any imports.

5) The sector supports the generation of £2.9 billion per annum in tax revenues, mainly from VAT and income tax and National Insurance contributions from the sector.

6) The sector supports the employment of 113,000 employees throughout the economy. Because of their special heritage skills, these 23,783 employees directly employed in the maintenance and repair sector of the industry typically earn a premium of 70% above the average wage. In addition, the sector is being proactive with its newly started apprenticeship scheme. Already in 2019 there were 665 apprentices in the industry from a standing start and this scheme is expected to grow exponentially.

7) Based on the wage premium from the specialist skills that classic car maintenance and restoration workers possess, these skills were worth at least £335 million per annum to the UK economy in 2019. This does not take account of the value of intangible benefits, such as the enjoyment of the work, or the special value associated with the preservation of historic craft skills.

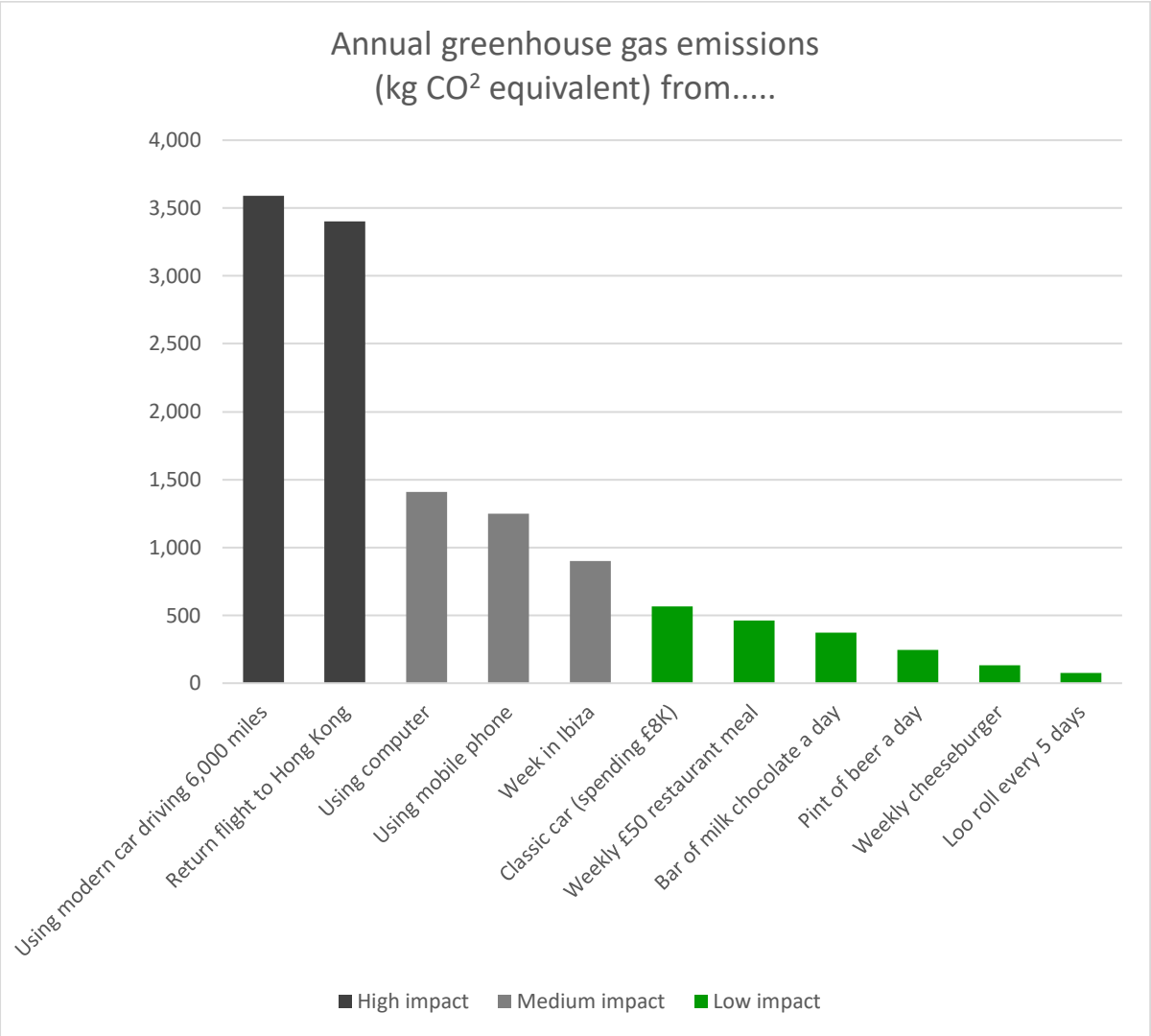
8) The jobs generated by the sector are based on conservation and craftsmanship. Craft based jobs are in the top 8% for job satisfaction.

9) Contrary to what one might expect, spending on classic cars is much more environmentally friendly than most consumers' expenditure.

The sector is essentially based on the use, repair and conservation of existing materials rather than the fabrication of new items. This means that it has a high labour content and a low materials and energy content. In addition, very low average mileages are associated with classic car usage. Classic car usage also has a low import content.

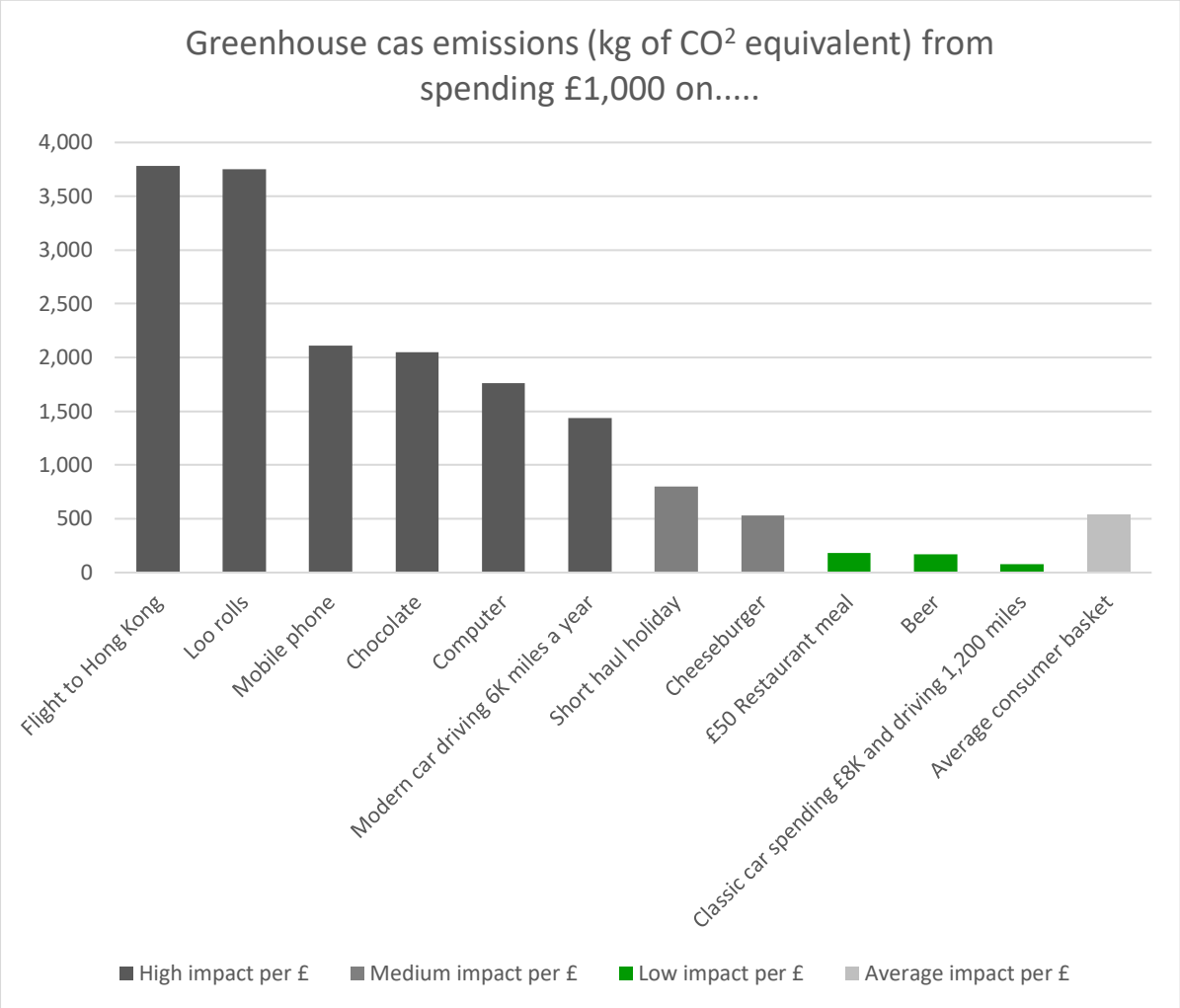
The average user of a classic car produces 563 kg of CO_2 equivalent emissions in a year. This is still too much and the industry is working to bring it down. But it needs to be seen in context. It is around half the emissions from using a computer or a mobile phone or from going on a week's holiday in the Mediterranean. And it is a sixth of the impact of using a modern car regularly or taking a return flight to the Far East.

Figure 2 Annual greenhouse gas emissions from a range of activities…



The average £1,000 spent on owning and using classic cars creates 80 kg of CO_2 equivalent emissions, after taking all the inputs into account. This compares with 537 kg of CO_2 emissions that would result from an average £1,000 of consumer expenditure, measured the same way. If you spend on classic cars rather than spending the same money going to the pub or eating restaurant meals you halve your environmental emissions. If you spend on classic cars rather than spending a similar amount on short haul holidays you cut your emissions by 90% and compared with flying to the Far East you cut your emissions by as much as 98%.

Figure 3 Greenhouse gas emissions per £1,000 spent



So, even using existing technology, historic and classic vehicles actually are contributing to the greening of the economy, and technological change in future will enable the sector to contribute further.

10) The UK's stock of historic classic vehicles, estimated to be worth £12.6 billion, is a major contributor to the UK's heritage. Not strictly comparable, but the more than 400 historic buildings and sites looked after by English Heritage are estimated to be worth about £30 billion to the economy.

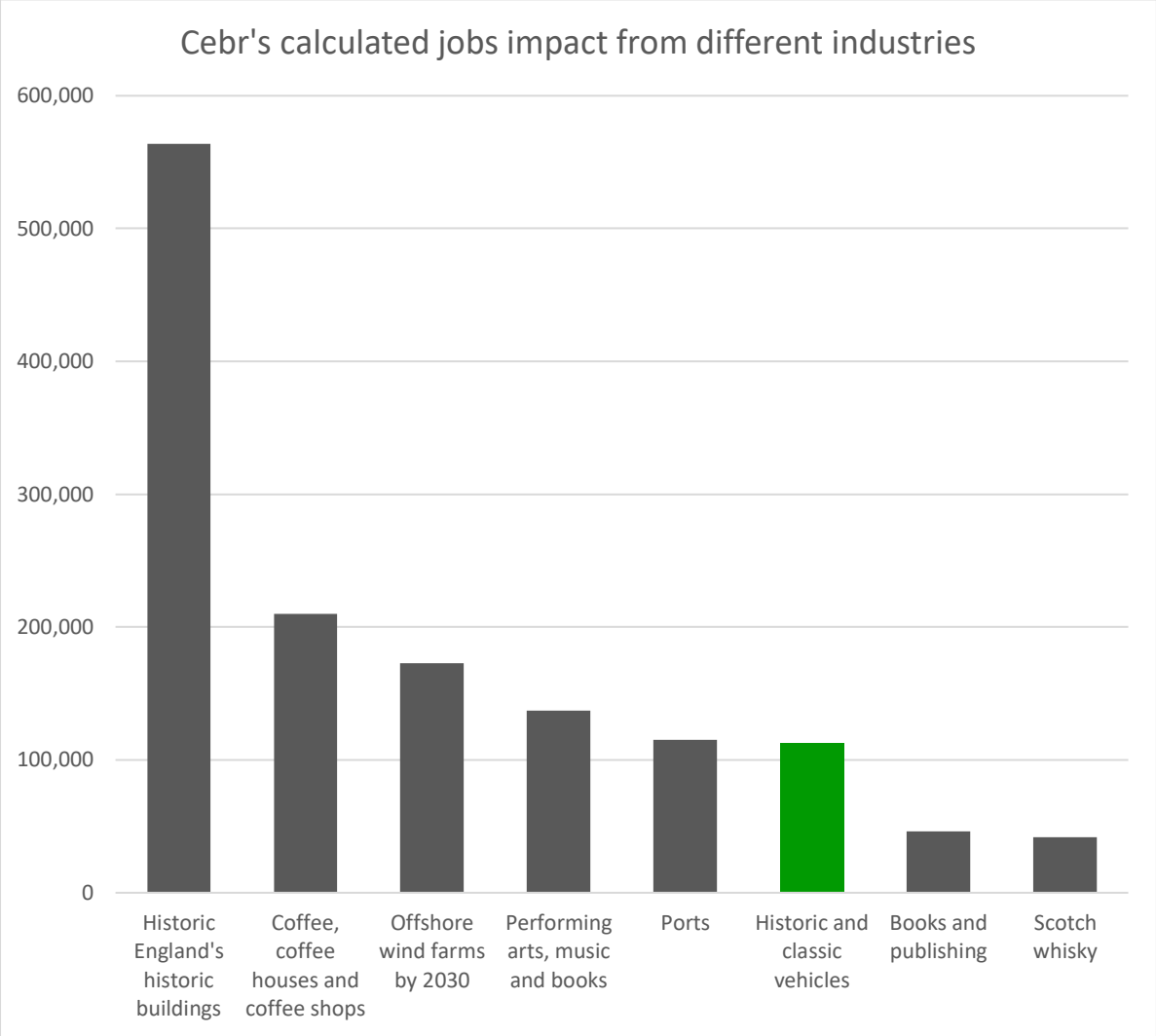
11) It is not just the normal expenditure by historic and classic vehicle owners that boosts the economy. In addition, there is a host of additional industries such as owners clubs, historic racing and rallying, museums, magazines, tools and parts that also contribute. Our cautious estimates suggest that in total these businesses contribute over £500 million per annum in GVA to the economy.

12) The industry is widely dispersed throughout the country. London only accounts for 5% of its activity. While the West Midlands, traditional home of the motor industry, accounts for nearly double that. And the automotive, motorsport and historic vehicles clusters interplay with each other through supply chains and skill creation.

2.3 Comparisons with other sectors

We have also compared the sector with other areas where Cebr has published reports for clients.

Figure 4 Cebr's calculated jobs impacts from different sectors



The heritage

Both historic vehicles and buildings contribute to the economy.

The Cebr research[1] on the contribution of historic buildings to the economy calculated that they contributed £36.6 billion to the UK's GVA and in total to supporting 564,000 jobs.

Coffee and coffee bars[2]

Cebr's research into the coffee industry shows that it supports 210,000 jobs.

[1] https://historicengland.org.uk/content/heritage-counts/pub/2019/heritage-and-the-economy-2019

[2] https://www.britishcoffeeassociation.org/assets/files/uploads/BCA%20CEBR%20-%20The%20economic%20value%20of%20coffee%20in%20the%20UK%2020%20April_FINAL.pdf

Offshore wind[3]

Cebr's research into the offshore wind industry predicted that it would support 174,000 jobs by 2030.

The arts

The performing and literary arts[4] contributed £10.8 billion in Gross Value Added (GVA) in 2019, with £8.6 billion of this generated by the market segment of the industry and the remaining £2.2 billion contributed by the non-market organisations. The arts sector contributed 137,250 jobs in total.

Ports

Cebr's report for Maritime UK[5] showed the economic contribution of the UK's ports, which of course is just one component of the maritime economy

Cebr has estimated that in 2017 the ports industry directly contributed approximately £29.0 billion in business turnover, £9.7 billion in GVA and 115,000 jobs for UK employees.

Books and bookselling[6]

Obviously the value of books goes way beyond the simple economic impact. But even that is considerable and supports 46,000 jobs.

Scotch whisky

For a single product, the economic impact of Scotch whisky is massive. A report by Cebr[7] shows that the industry supports 42,000 jobs.

[3] https://cebr.com/reports/economic-impact-of-offshore-wind/#:~:text=Cebr%20shows%20that%20the%20net,in%20offshore%20wind%20is%20considerable.&text=By%20helping%20the%20UK%20reduce,a%20time%20of%20economic%20uncertainty.%E2%80%9D

[4] https://www.artscouncil.org.uk/publication/impact-arts-and-culture-wider-creative-economy

[5] https://globalmaritimehub.com/wp-content/uploads/2019/09/Cebr_Maritime_UK_Ports.pdf

[6] https://cebr.com/reports/bookselling_britain_report/

[7] https://cebr.com/reports/the-times-scotch-whisky-puts-spirit-into-economy/#:~:text=According%20to%20the%20Scotch%20Whisky,generated%20in%20the%20broader%20economy.

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3. Introduction and overview of the sector

3.1 Definition

The historic vehicle sector has its own definitions. A vehicle produced before the First World War is defined as 'veteran', one produced before 1930 as 'vintage'. Vehicles produced after this date are less tightly defined.

At one point any vehicle more than 25 years old was exempt for road tax in the UK. Then this rule was adjusted to cover only vehicles produced before 1973. Now any vehicle more than 40 years old is exempt from road tax. But there are plenty of vehicles that would widely be considered classic that are much younger than that, though the industry definitions tend to be subjective.

For a study like this with quantification key to its findings, it is important that a precise definition is used.

Fortunately, in the UK the HMRC has precise guidelines for classic vehicles for the purpose of tax. On their definition, a classic car is a car that is *either* 'more than 15 years old and worth more than £15,000' *or* 'more than 20 years old and likely to be worth preserving'. We have used this definition throughout this study. We have included all cars over 20 years old that have been preserved (ie not lying in fields or elsewhere effectively being scrapped) and all those cars over 15 years old that are worth more than the stated amount. It is worth noting that the £15,000 cut off has been kept at the same level for over 30 years.

For its research the Federation of British Historic Vehicles Clubs (FBHVC) use a definition common in the industry, defining an historic vehicle as one over 30 years old. Because their definition is more restricted than ours, some of their estimates (eg number of vehicles) are lower than ours. This does not imply inconsistency – just that their numbers are calculated on a different basis. FBHVC estimate that there are 1.54 million historic vehicles in the UK. Cebr estimate that there are in addition 1.47 million classic vehicles that satisfy the HMRC definition of classic vehicle, giving a total of 3.01 million classic and historic vehicles (see Figure 1).

3.2 The sector

The sector comprises three distinct elements though they often overlap.

First is ownership. The 700,000 owners of classic cars (FBHVC figure) take great pride and joy in their ownership. They spend significant amounts on restoration, repairs and maintenance, often far in excess of the value of their vehicles. In addition, they spend on insurance and, where appropriate, tax, on fuel and oil and lubrication, on transport and storage and of course on parking charges, speeding fines and the like. It is a convention in economics not to treat fines or even parking tickets levied on motorists as taxes and therefore as contributions to the economy and we have followed that convention and do not include them in this analysis. It has been alleged, though, that many such charges are more for the purpose of revenue generation than as punishments for bad behaviour.

The second is historic motor sports, racing and rallying in particular. These are major spectator and participation events that are attracting increasing interest. The various events at Goodwood, Silverstone and elsewhere have achieved massive status not only amongst historic vehicle enthusiasts and are highly oversubscribed. These sports make a significant contribution to the local economy. Historic rallying is an extremely fast-growing sport, judging by attendance at the training sessions organised by HERO-ERA and other rally companies. These again are oversubscribed. The flagship rally event, the Peking to Paris Motor Challenge, was immediately 8 times oversubscribed when entries for the 2022 event opened in early 2020.

The third is a range of related industries, from owners clubs, through museums, shows and exhibitions and ending with magazines, models, tools, specialist clothing, regalia and equipment.

All these sectors contribute significantly to the UK economy.

3.3 Methodology for evaluation

Economic impact

Our methodology looks at the following different elements:

1. **Direct GVA** and employment through those directly employed in the industry. This is the economic activity that takes place as a result of the direct spending associated with the different facets of the sector.

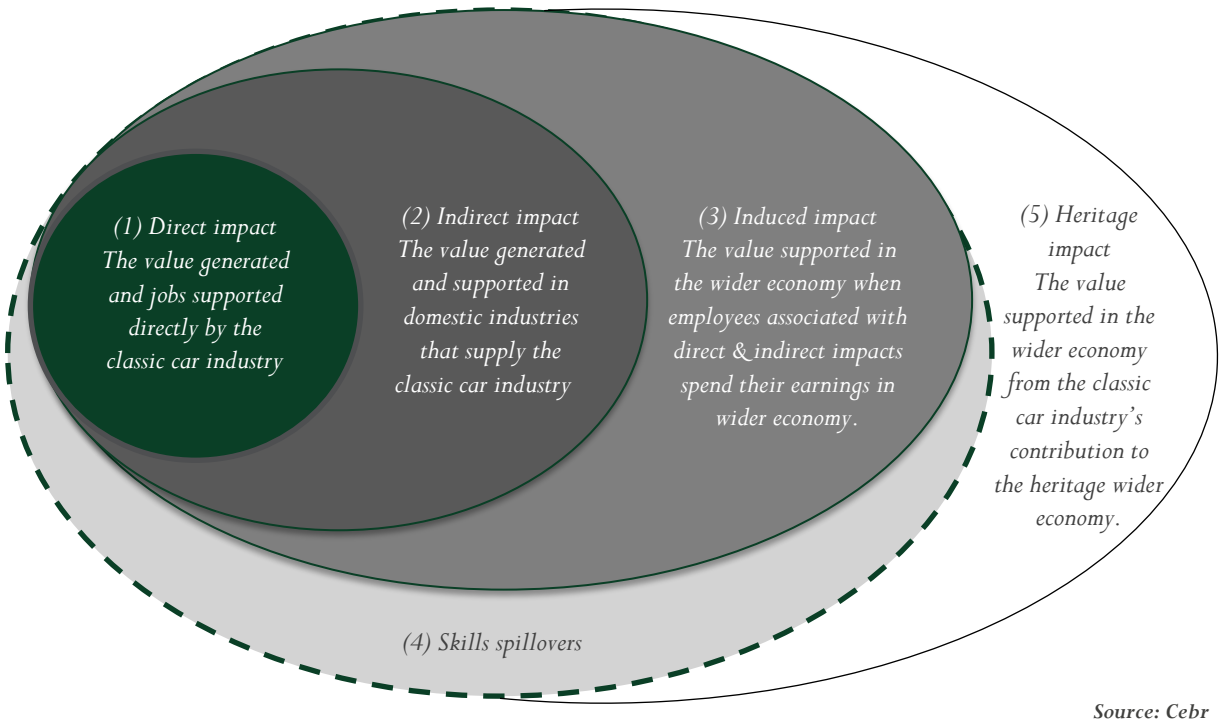
2. **Indirect support** through the supply chains that feed into the industry. The sector is built on specialist subcontractors, so measuring the direct economic activity is always going to understate the true economic activity generated by the sector. The indirect spending through the specialist supply chain is estimated by combining information supplied directly by participants in the industry with input-output modelling data using statistics from the ONS.

3. Workers in the direct and indirect industry sectors spend this money within the economy, thus facilitating **induced impacts** that provide further layers of support. We model this again using ONS data for spending behaviour.

4. The **skills creation, preservation and transfer** from the classic car industry. This includes not only the skills within the sector itself but also skills in the supply industries like woodworking, metal working and leather production and working. We have modelled the impact of this using our experience in evaluating the impact of education and skills.

5. **The UK's heritage is a major contributor to the economy**. Cebr's report for Historic England in 2019 showed how the sector generated over £30 billion per annum for the economy in GVA and over half a million jobs. **Classic and historic vehicles are a vital part of the heritage** and we also evaluate how they contribute.

Figure 5 The economic impact of classic and historic vehicles



Source: Cebr

Non-economic impacts

The analysis looks at three aspects of the impact of historic vehicles that are not directly fully measured as part of the economic impact.

First, it looks at skills transfer.

There is a range of skills and knowledge spillovers. The classic car industry is a major repository of craft heritage and conservation skills, often passed on through the generations, which will die off if not sustained. These include mechanical skills, bodywork skills, metalworking skills, many complex engineering skills, woodworking, leather treating and repair and a range of other skills necessary for classic car repair, maintenance and restoration. In addition, other specialist skills are emerging including electronic retrofitting and likely future skills to enable classic vehicles to be made even more environmentally friendly.

Many of the skills associated with classic cars are craft skills which can benefit those who might be less qualified for other parts of the modern digital and tech economy. As a result, sustaining such skills improves diversity and provides increased opportunities within the economy. These skills also add to conservation within the economy.

We evaluate the benefits of the skills created by looking at the additional salaries that are paid to the specialist skilled employees involved in the sector.

Second, we look at the environmental impact of spending on historic vehicles. We use augmented input-output analysis to evaluate the entire impact of spending on historic vehicles throughout the value chain to measure the emissions impact. We then compare this will the impact of typical consumer spending of an equal amount.

It is often thought that classic cars have a negative environmental impact because of their use of fossil fuels. But the average mileage is very low and hence their fuel usage is low.

In fact, our analysis suggests spending money on classic cars is a pro-environmental use of money compared with the most likely alternative uses of the same money.

Much of the money spent on classic cars is on their repair, maintenance and restoration. Compared with the inputs for other forms of expenditure, the ratio of labour to materials is very high. Moreover, much of the materials input is recycled and reused. The sector is based on conservation.

Other forms of expenditure associated with classic cars are also relatively environmentally friendly even after taking account of fuel usage.

Cebr has spent many years making environmental assessments of economic activity and for this project we compare the environmental impact of spending on classic car activity (including fuel usage) in various ways using input-output modelling to ensure the environmental impact of the whole supply chain is included.

Third, we look at the contribution to conservation and the heritage. The UK built heritage is worth £30 billion a year according to Cebr's research for Historic England. We compare the impact of classic vehicles with other aspects of the heritage,

The UK was the first country to industrialise and one of the first to develop a major motor industry. The UK's motoring heritage is rightly celebrated as a highlight of our industrial history.

As motoring moves towards a new era with vehicles using green power sources and eventually automated vehicles, the traditional classic cars become an important part of the knowledge about our past. Moreover, knowledge about cars and how they work helps the more general understanding of other subjects like maths and science.

We use the work Cebr has already carried out for Historic England to scale the contribution of classic cars as part of the total economic contribution to the Heritage in the UK.

3.4 Metrics applied

Our key economic metrics are turnover, Gross Value Added, employment and compensation of employees.

Turnover is simply the sum total of all spending. Since the industry is vertically disintegrated with a large specialist supply chain, summing the turnover will give an exaggerated picture of the scale of the industry since the suppliers' turnover will be counted again when their input is sold on to the next level in the value chain. However, turnover gives an impression of the amount of activity generated within the sector even if, from an economists' perspective, there is some double counting.

Gross Value Added (GVA) is the economists' metric of choice for the contribution of a sector. It strips out any double counting when turnover is multiplied up in the supply chain. It also removes any contribution from imports, so it is a true measure of the sector's contribution to the UK economy Other than a slight difference in the valuation basis, GVA measures are equivalent to the contribution to GDP.

Employment is the third metric we use. We measure this from the GVA basis, taking account of the differential productivity in each sector in the supply chain so again there is no double counting. Economists typically measure employment in FTEs (Full Time Equivalents) so if there is part time working and job sharing (not atypical in a sector with craft skills and many older workers) part time work is translated into the equivalent number of full-time jobs.

The fourth metric is employee compensation in terms of cost of employment (COE). This again is based on the GVA basis and so measures the labour incomes arising from the industry in the UK.

Image: Mathieu Bonnev

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4. Value of the classic and historic vehicle fleet

4.1 Introduction

This section looks at the impact of ownership. Because we are using the imputed rent measure of the cost of specifically owning vehicles, we need an estimate of the value of the fleet of classic and historic vehicles.

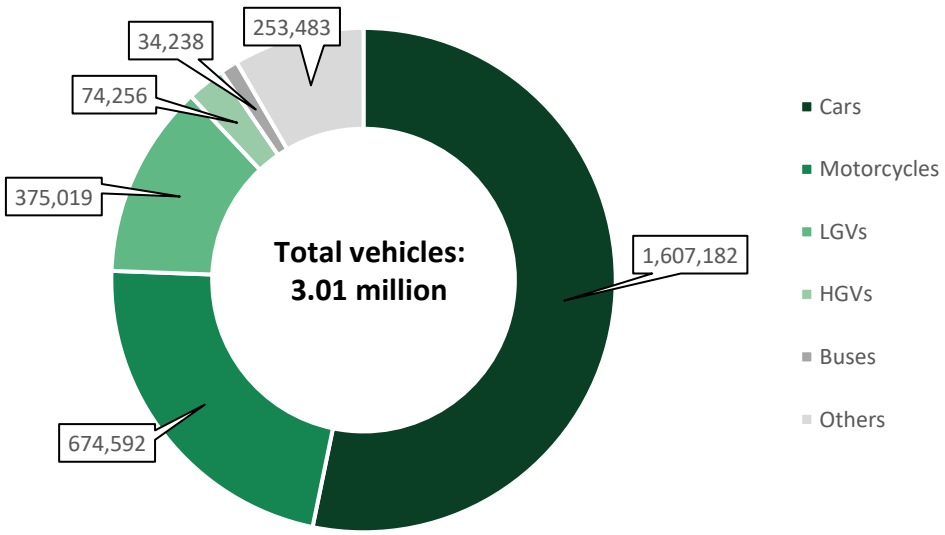
4.2 Overview

The starting point for much of our analysis involved sizing and valuing the UK's fleet of classic vehicles. Based on the differing characteristics of the vehicle types and the nature and quality of available data, we have split the fleet into six categories[8]:

- Classic cars
- Classic motorcycles
- Classic light goods vehicles (LGVs)
- Classic heavy goods vehicles (HGVs)
- Classic buses
- Other classic vehicles

Overall, we estimate that there are just over 3 million classic vehicles in the UK, with total value of £12.6 billion. Of these, just over half (1.6 million) are classic cars. The distribution of the fleet by number of vehicles can be seen below in Figure 6.

Figure 6: The UK's classic vehicle fleet by vehicle type



Source:
DVLA, Cebr analysis

In value terms, the total stock of classic vehicles is worth £12.6 billion. Of this, the cars are worth £8.7 billion – 69% of the total value. The full results by value are shown below in Table 1.

[8] These categories are consistent with the main categories of vehicle, as recorded in the Driver and Vehicle Licensing Agency (DVLA) data. Much of the data on the stock of vehicles relies on this as a primary data source.

Table 1: Size and value of the UK's fleet of classic vehicles, 2019

	Total produced	Total classic	Percentage classic	Average classic vehicle value (£)	Total value of those classic (£ million)
Cars	35,868,441	1,607,182	4%	5,421	8,712
Motorcycles	2,432,938	674,592	28%	1,779	1,200
LGVs	4,874,601	375,019	8%	3,722	1,396
HGVs	699,368	74,256	11%	2,621	195
Buses	197,160	34,238	17%	1,536	53
Others	989,885	253,483	26%	4,163	1,055
Total	**45,062,393**	**3,018,770**	**7%**	**4,178**	**12,611**

Source: DVLA, Octane, Car and Classic, Autotrader, eBay, Tradus, Cebr analysis

For the purposes of much of the analysis, we refer to the LGVs, HGVs, buses and other vehicles as 'commercial vehicles'. Based on the size of the fleet and greater variance in value per individual model, we have assessed the value of the classic car fleet with the most granularity.

4.3 The UK's classic car fleet

As Table 1 shows, by both volume and value the most significant component of the UK's classic vehicle fleet, is the stock of classic cars. We calculated the size of the fleet by creating a database of all vehicles which were manufactured before 2005 (and therefore at least 15 years old). These were categorised by manufacturer, model and year of first manufacture. For this, we were primarily reliant on DVLA data on registered vehicles or vehicles with a SORN. In addition, where data seemed missing or incomplete (for example there are 34,000 vehicles manufactured pre-2005 labelled 'Other British Model Missing', and a further 13,000 where the date of manufacture is unknown), we relied on secondary sources.[9]

After creating this database, we attempted to value each make and model. This was reliant on data from a number of sources, including Octane magazine, the Car and Classic website, AutoTrader, eBay and others. For significant makes where the value for specific models varied substantially (such as the Bentley Continental or Porsche 911) we cross-referenced these differing valuations with the year of manufacture in our database, estimating a weighted average value to attempt to account for this.

Per our definition for a classic vehicle, cars of age 15-19 years old that were worth less than £15,000 were then removed. This left the 1.61 million cars, seen above in Figure 6. This constitutes approximately 4.5% of the total in existence, or about 1 in every 22 cars. We estimate that these classic cars have a total value of approximately £8.7 billion. This gives an average value per car of £5,421 – the highest of any of the vehicle types.

4.4 Results by manufacturer

Breaking down these results by manufacturer and sorting by total value, the expected manufacturers – Porsche, Jaguar, Aston Martin, BMW and Ferrari - appear at the top. The results for the top 30 manufacturers by value can be seen in Table 2.

[9] For those makes where we were able to liaise with specific owners clubs, the DLVA data often significantly underestimated the total number of vehicles. Every effort has been made to modify our database to account for this, but it is still likely that we have slightly underestimated the total size of the fleet, and therefore also the total value. Cebr thanks specifically the Austin Healey Owners Club, the AC Owners Club, the Bentley Drivers Club, the Maserati Owners Club, the Porsche Club of Great Britain, the Riley Owners Club and the Rolls Royce Enthusiasts Club for their help.

Table 2: Value of classic car fleet by manufacturer, 2019

Make	Number of classic cars	Total value	Average value
Porsche	43,591	1,177,402,814	27,010
Jaguar	47,791	723,342,788	15,136
Aston Martin	6,622	612,601,100	92,510
BMW	99,100	581,609,877	5,869
Ferrari	6,090	469,223,318	77,048
Mercedes	96,968	456,703,892	4,710
MG	52,463	371,063,650	7,073
Ford	172,553	332,627,184	1,928
Bentley	10,301	299,848,607	29,109
Land Rover	77,059	287,357,070	3,729
Triumph	28,414	223,797,400	7,876
Lotus	9,915	193,023,000	19,468
Rolls-Royce	7,501	190,934,545	25,455
Volkswagen	120,116	175,714,100	1,463
Toyota	79,946	160,493,250	2,008
Audi	30,957	136,434,500	4,407
Austin-Healey	5,026	131,170,000	26,098
Mini	42,906	128,718,000	3,000
Peugeot	65,199	114,940,450	1,763
TVR	7,555	113,965,000	15,085
Morgan	4,037	92,976,184	23,031
Vauxhall	85,137	92,711,000	1,089
Alfa Romeo	9,550	90,351,550	9,461
Citroen	31,123	81,705,540	2,625
Bugatti	133	76,455,704	574,855
Rover	44,869	76,169,150	1,698
Honda	40,810	75,186,200	1,842
Maserati	1,617	72,056,840	44,562
Nissan	54,155	70,879,100	1,309
Austin	20,847	69,107,500	3,315
All others	304,831	1,033,837,844	3,392
Total	**1,607,182**	**8,712,407,159**	**5,421**

Source: DVLA, Octane, Car and Classic, Autotrader, eBay, Cebr analysis

By total value, the UK's stock of classic Porsches is worth the most. At £1.18 billion (13.5% of the total), Porsche is the only manufacturer to exceed £1 billion. As will be seen, this is largely driven by 23,000 Porsche 911s, worth an estimated £911 million. For the Jaguars, the E-type and XJ Series are the greatest contributor; for Aston Martin it is the DB5 and for BMW the 3 Series leads the way. The full results by model, for the top 50 models is presented at the end of this subsection.

Several other notable points are worth highlighting. Minis have been categorised as their own make (coming in 16th place), rather than separately as Austin Minis or Rover Minis. The values for Austin and Rover therefore do not include these models, to avoid double counting.

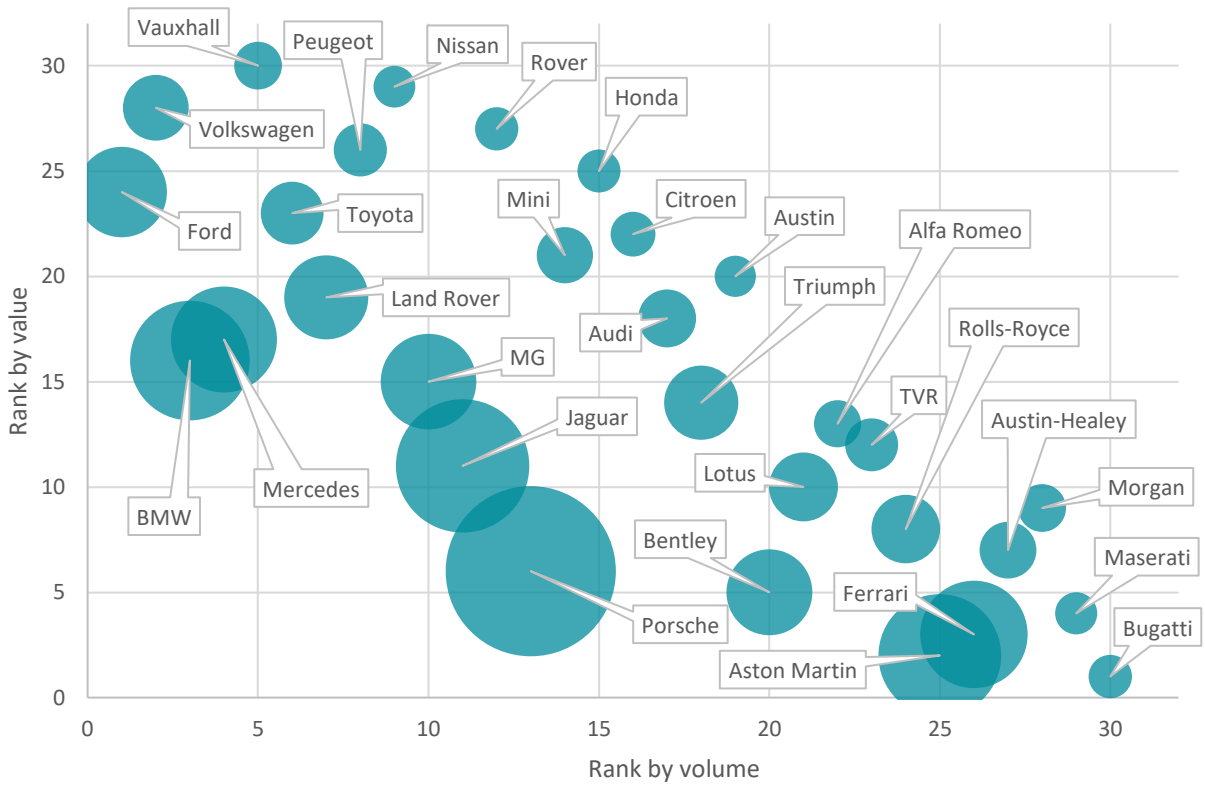
A large percentage of the classic Land Rovers are actually classified as LGVs, within the DVLA data. While 77,059 are classified as classic cars, with an estimated total value of £287million (8th), a further 91,212 are classified as LGVs – most significantly the majority (35,987) of the Land Rover Defenders are classified as LGVs. These additional Land Rovers have an estimated total value of £722 million.

We have chosen to remain consistent with the DVLA classification and left these vehicles classified as LGVs. However, if they were to be included as cars, Land Rover would be second by both number of vehicles (168,271, behind only Ford) and total value (£1.01 billion, behind only Porsche). In total we have identified approximately 139,000 vehicles that would often be considered as cars are classified as other vehicle types, including the aforementioned Land Rovers, 7,800 Toyota Hilux pick-ups and 3,312 Reliant Robins. These have a total estimated value of £881 million, which is attributed predominantly to the LGVs, although some to the 'Other Vehicles'.

The distribution between high-end vehicles and models with a lower average value is also interesting. Intuitively, when 'classic car' comes to mind, not many people are likely to think of a Vauxhall before a Bugatti, yet driven by the surprising number that are over 20 years old, Vauxhalls are three places higher in the rankings. Logically, it is two marques with both strong average values and high volume that are first and second by total value (Porsche and Jaguar). However, within the top ten, Ford (low average value but high volume) and Aston Martin and Ferrari (low volume but high average value) are particularly notable for not conforming to this trend.

This relationship is explored further in Figure 7. We have taken the 30 most valuable manufacturers by total value (those in Table 2) and ranked them by number of classic vehicles and average value. '30' indicates the manufacturer with the lowest average value/number of vehicles, and '1' the highest. The sizes of the bubbles are proportionate to total stock value.

Figure 7: Key classic car makes by ranking of number of vehicles and average value, 2019



Source: DVLA, Octane, Car and Classic, Autotrader, eBay, Cebr analysis

As would likely be expected, there is a rough inverse relationship between the average value of a manufacturer's classic cars and the volume. This is likely because as the production number increases, the individual cars are less rare and therefore less valuable. No manufacturer better shows the inverse relationship between quantity and average value than Bugatti, which is first for average value but 30th for quantity[10]. On the opposite end of the spectrum, Volkswagen, Nissan and Vauxhall on average are the three least valuable, but second, ninth and fifth most common respectively.

Table 3 and Table 4 show alternative ranking tables, with the top 10 manufacturers calculated by sorting by total classic vehicles, and average value of classic vehicles respectively. In particular, this second table highlights some of the makes that are often the first to come to mind when classic cars are thought of but were not produced in high volume.

Table 3: The UK's classic car fleet by number of vehicles per manufacturer, 2019

Make	Number of classic cars	Total value (£)	Average value (£)
Ford	172,553	332,627,184	1,928
Volkswagen	120,116	175,714,100	1,463
BMW	99,100	581,609,877	5,869
Mercedes	96,968	456,703,892	4,710
Vauxhall	85,137	92,711,000	1,089
Toyota	79,946	160,493,250	2,008
Land Rover	77,059	287,357,070	3,729
Peugeot	65,199	114,940,450	1,763
Nissan	54,155	70,879,100	1,309
MG	52,463	371,063,650	7,073

Source: DVLA, Octane, Car and Classic, Autotrader, eBay, Cebr analysis

Table 4: The UK's classic car fleet by average value of manufacturer, 2019

Make	Number of classic cars	Total value (£)	Average value (£)
Bugatti	133	76,455,704	574,855
Frazer Nash	13	4,931,522	379,348
McLaren	39	8,925,285	228,853
Lamborghini	189	34,650,000	183,333
Lagonda	110	14,295,311	129,957
Aston Martin	6,622	612,601,100	92,510
Ferrari	6,090	469,223,318	77,048
AC	182	13,359,988	73,407

[10] Note that this does not mean that Bugatti is the 30th most common classic car manufacturer in the UK. Instead, of the 30 most valuable by total value, Bugatti is the least common.

Maybach	21	1,325,000	63,095
Bristol	1,159	55,362,000	47,767

Source: DVLA, Octane, Car and Classic, Autotrader, eBay, Cebr analysis

4.5 Results by model

As referenced above, the main model driving Porsche's highest total value is the stock of Porsche 911s. The 23,029 classic 911s are worth an estimated £911 million – more than double the second place Jaguar E Type (£370 million), and more than the entire stock from any other manufacturer[11]. This comparison is slightly misleading because Porsche have sold a model called the 911 since 1964 and clearly the 2020 version is very different from the 1964 version, whereas the E Type was only manufactured from 1961 to 1975. Along with these, other key models with a high total value include the Austin/Rover Minis (£309 million), BMW 3 Series (£293 million) and MG MGB (£236 million). The results for the top 30 are presented below.

Table 5: 30 most valuable classic car models by total value, 2019

PORSCHE 911	23,029	910,819,314	39,551
JAGUAR E TYPE	4,120	370,800,000	90,000
AUSTIN/ROVER MINI	56,650	309,235,000	5,459
BMW 3 SERIES	52,025	293,193,982	5,636
MG MGB	26,265	236,385,000	9,000
ASTON MARTIN DB5	210	147,000,000	700,000
FORD ESCORT	42,906	128,718,000	3,000
LAND ROVER DISCOVERY	42,756	128,268,000	3,000
JAGUAR XJ SERIES	22,561	112,805,000	5,000
BENTLEY CONTINENTAL	1,905	108,908,247	57,170
JAGUAR XK SERIES	7,120	101,825,013	14,301
MERCEDES 300	11,140	97,706,479	8,771
MERCEDES SL CLASS	5,070	91,773,588	18,100
LOTUS ELAN	3,248	89,320,000	27,500
FERRARI 360	945	75,600,000	80,000
ASTON MARTIN DB6	264	73,920,000	280,000
LAND ROVER RANGE ROVER	18,092	72,368,000	4,000
ASTON MARTIN DB7	2,519	70,532,000	28,000
VOLKSWAGEN GOLF	63,979	70,376,900	1,100
BMW 5 SERIES	16,494	66,872,645	4,054
TRIUMPH STAG	5,876	64,636,000	11,000
MERCEDES C CLASS	16,027	64,108,000	4,000
ALFA ROMEO SPIDER	3,638	58,208,000	16,000
PEUGEOT 205	15,151	56,058,700	3,700
PORSCHE 944	5,962	53,658,000	9,000
MERCEDES E CLASS	13,026	52,104,000	4,000

[11] This analysis excludes the impact of the Land Rovers classified as LGVs, which if included give classic Land Rovers a total value of £1.01 billion.

PORSCHE CARRERA	1,722	51,660,000	30,000
AUDI QUATTRO	1,376	51,600,000	37,500
ASTON MARTIN V8	440	48,400,000	110,000
ASTON MARTIN DB4	80	48,000,000	600,000

Source: DVLA, Octane, Car and Classic, Autotrader, eBay, Cebr analysis

Along with the top five referenced above, there are several interesting models to discuss further. The high total value of the sixth placed Aston Martin DB5 is very notable given the low estimated numbers (210 per DVLA data), clearly driven by the very strong average value.

The tenth placed Bentley Continental is classified as one model, but de facto constitutes about 100 R-type and S1 continentals with values £300,000 to £1,000,000, while the majority are more modern Continental Rs, with average value of about £35,000. The totals presented above, and the average value of £57,170 is a combination of the two. The Jaguar XK Series just below Bentley is a very similar case, comprising about 800 vehicles manufactured pre-1960, with average value of about £70,000 and the remaining 6,300 produced 1996-99, with average value of about £7,000. The results presented above are again the combined value of the two production tranches.

Data on high-value early Mercedes SL Class cars was difficult to identify – DVLA records for example do not explicitly identify any 300SL Gullwings or W198 SL Roadsters. These are worth about £1,000,000 and £600,000 respectively, so would have a considerable impact in even small volumes. By looking at the manufacture date of Mercedes cars where DVLA records are incomplete, and the total Mercedes manufactured in each year, we can estimate an approximate distribution of these cars by model. From this, we estimate that approximately 26 SL Gullwings and 34 W198 SL Roadsters were missing from our initial analysis. These have been added into the SL estimate, to give the total value of £92 million above. However, it is possible that these are over or underestimates for the number of early high value SLs, which could significantly impact the total value of this model.

It is also worth briefly touching again on the Land Rovers classified as LGVs. By total value, by far the most valuable of these is the Defender - the 36,000 classic LGV Defenders have a total value of £252 million. Including the few Defenders classified as cars, if included in Table 5 above they would be in fifth place with a total value of £265 million, between the BMW 3 Series and the MG MGB.

Within the top 100, 36 manufacturers are represented, ranging from high-value low volume classics (such as the 175 Bentley Azures, with total value £17.5 million) to lower-value high volume vehicles (such as the 22,700 Vauxhall Corsas manufactured pre-2000, with total value £18.2 million). Of the top 100, Aston Martin and Mercedes lead the way with nine models each, followed by BMW with seven, Porsche with six and Ford, Jaguar and MG with five.

4.6 The UK's classic motorbike fleet

The size of the motorbike fleet was assessed in the same way as the cars. However valuing the fleet was more difficult. This is because the DVLA data on motorbikes is less complete, with a large percentage of the more granular data missing. As an example, of the estimated 159,000 classic Honda motorbikes, 83,000 were classified as 'Honda Model Missing'. As a consequence, it was not feasible to value motorbikes by specific model.

Instead we classified every motorbike by manufacturer, decade of manufacture and whether it was registered as roadworthy or with a SORN. From this, we used online sources such as AutoTrader, eBay, Car and Classic and other online marketplaces to estimate average values by manufacturer and year of manufacture, with an assumed lower value for those with a SORN. We also made slight adjustments, varying based on the data source, to account for the slight bias of online listings likely reflecting a slightly higher average condition.

From this we estimate total value of classic motorbikes, by manufacturer.

The full results of this are shown in

Table 6.

Table 6: The UK's classic motorbike fleet by manufacturer, 2019

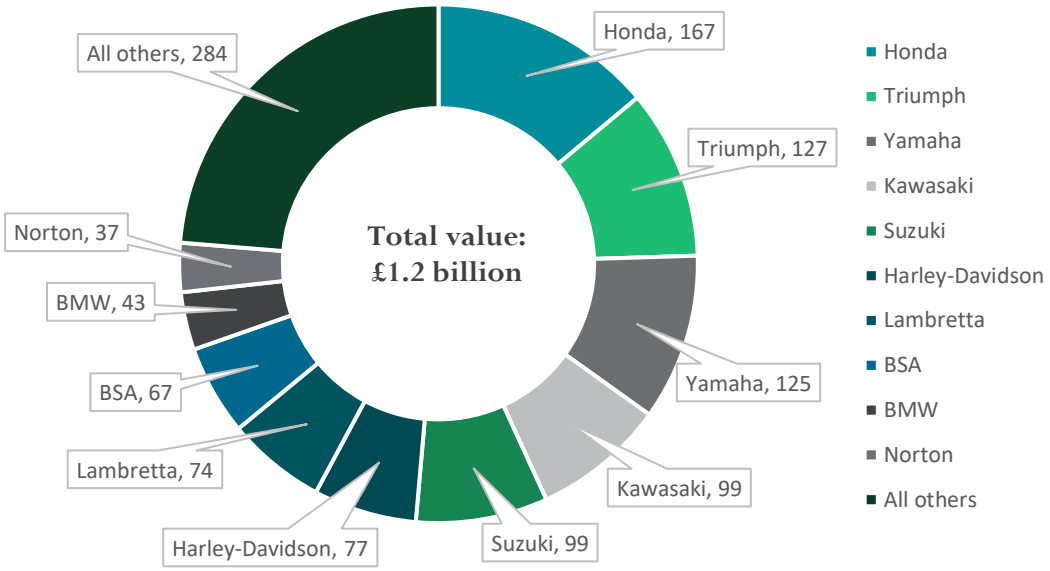
	Number of classic motorbikes	Total value (£)	Average value (£)
Honda	159,187	167,100,340	1,050
Triumph	41,915	126,872,803	3,027
Yamaha	96,873	124,636,337	1,287
Kawasaki	72,667	99,445,495	1,369
Suzuki	83,965	98,734,262	1,176
Harley-Davidson	16,236	77,275,400	4,760
Lambretta	20,218	74,272,095	3,674
BSA	21,869	67,294,445	3,077
BMW	26,492	43,220,635	1,631
Norton	8,880	36,802,556	4,144
Ducati	9,609	14,060,692	1,463
Vespa	11,129	13,461,090	1,210
Moto Guzzi	6,285	13,399,956	2,132
Velocette	3,709	11,447,346	3,086
Matchless	3,245	10,454,995	3,222
AJS	2,924	10,064,196	3,442
Piaggio	8,541	8,021,738	939
MZ	4,400	5,393,948	1,226
Sunbeam	1,342	5,112,736	3,810
Enfield	2,139	4,157,812	1,944
All others	72,967	188,743,017	2,587
Total	**674,592**	**1,199,971,896**	**1,779**

Source: DVLA, Car and Classic, Autotrader, eBay, Cebr analysis

Driven by their high volume of bikes (159,000, or 23.6% of the stock), Hondas have the highest total value, with Triumph, Yamaha, Kawasaki and Suzuki rounding out the top five. It is notable that while still substantial, with a total fleet value of £1.2 billion, the average value per classic motorbike is significantly lower than for cars. This is largely driven by the high SORN rate for motorbikes, with 61% of the 675,000 estimated to be registered with a SORN. For reference, the average value of those registered on the road is £3,608. While still lower than the average car value of £5,421, this does explain some of the discrepancy.

For visual clarity, the value of the ten most valuable makes is shown below in Figure 8.

Figure 8 : Ten most valuable classic motorbike manufacturers, 2019, £ million



Source: DVLA, Car and Classic, Autotrader, eBay, Cebr analysis

4.7 The UK's fleet of classic commercial vehicles

The remainder of the classic fleet constitutes the LGVs, HGVs, buses and other vehicles. With a few exceptions, these broadly constitute commercial vehicles which are at least 20 years old. While these may not be intuitively the first vehicles that come to mind, those that meet the definition for classic vehicles are worth including, and as will be seen, are of considerable value. A summary of what goes into each category is as follows:

- → The LGVs are a combination of 4x4 vehicles (such as 36,000 Land Rover Defenders and 8,000 Toyota Hilux pick-ups), commercial vans (such as 34,000 Ford Transits) and campervans (including 5,800 Volkswagens).
- → The HGVs are primarily lorries and trucks. Iveco-Ford, Mercedes and Leyland are among the most common manufacturers.
- → The buses are a combination of large commercial buses, minibuses and coaches. Ford, Mercedes, Leyland and Dennis are the most common makes.
- → The other vehicles are dominated by agricultural vehicles (about 80%), including 44,000 Massey Fergusons and 18,000 John Deeres. The remainder are construction vehicles, taxis and miscellaneous vehicles (such as about 6,000 3-wheel Reliant Robins and Rialtos).

The main components of each of these groups were valued individually, primarily based on data from online marketplaces, before being summed to estimate the total value of the fleet.

The major methodological difference for commercial vehicles is that, for those with a SORN, we assumed very low average values. This is driven by the fact that their monetary value is far more tied to their functionality than for classic cars or motorbikes - for example, a truck that is off the road has very low value. In other words they are predominantly not valuable because of their classic nature, but rather their maintained functionality. As such, the percentage that are registered as being on the road is closely related to the average value of the classic stock for each of the groups.

The full results of this analysis can be seen in Table 7 below.

Table 7: Classic LGVs, HGVs, buses and other vehicles, 2019

	Number	Value (£m)	Average value (£)	On-road %	Average value of on-road
LGVs	375,019	1,396	3,722	52%	4,857
HGVs	74,256	195	2,621	38%	6,640
Buses	34,238	53	1,536	34%	4,135
Other	253,483	1,055	4,163	71%	5,722
Total	**736,996**	**2,699**	**3,662**	**56%**	**5,330**

Source: DVLA, Autotrader, eBay, Tradus, Cebr analysis

Due primarily to the high number of vehicles identified, classic LGVs and other vehicles have a significantly higher total value than the HGVs and buses. Overall, we estimate that the 736,996 LGVs, HGVs, buses and other vehicles are worth about £2.7 billion, giving an average value of £3,662. For those still registered as road-worthy (just over half), this rises to £5,330.

However as was discussed in Section 4.3, a large percentage of the LGVs are 4x4s (the majority of which are Land Rovers). We classified these as LGVs to maintain consistency with DVLA registration data, but the majority of these are clearly not commercial vehicles. Of the 375,000 LGVs, just over a third (136,000) are estimated to be 4x4s, and in value terms these make up £863 million (62%) of the value of all classic LGVs. Furthermore, there are some other vehicles (such as the Reliants) that are non-commercial. By stripping these out, we can give an estimate for the stock of classic commercial vehicles. These findings are shown in Table 8.

Table 8: Classic commercial vehicles by vehicle type, 2019

	Number	Value (£m)	Average value (£)	On-road %	Average value of on-road
LGVs	238,785	533	2,232	54%	3,990
HGVs	74,256	195	2,621	38%	6,640
Buses	34,238	53	1,536	34%	4,135
Other	247,168	1,051	4,252	72%	5,745
Total	**594,447**	**1,831**	**3,080**	**58%**	**5,112**

Source: DVLA, Autotrader, eBay, Tradus, Cebr analysis

Due to the removal of the non-commercial LGVs and other vehicles, the total value has fallen by £867 million, to £1.81 billion. Over half of this (57%) is made up of other vehicles, of which as referenced, the majority are agricultural. The average value of a classic commercial vehicle is £3,080; however this rises to £5,112 for the 58% that are not registered with a SORN.

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5. Direct economic impact of sales, rental and ownership

5.1 Introduction

This section looks at the economic impact of buying, selling, renting and owning classic and historic vehicles.

The impact of renting is easy to measure. But measuring the impact of owning is more complicated and involves interesting measurement issues. For new cars, spending on owning them is calculated as the amount spent on purchase. Normally for used cars, since the sales are within the sector, these are ignored. One way of measuring the 'spend' on classic and historic vehicles might be to measure how much is spent purchasing such vehicles in a given year. But since most of this spend is recycled between classic vehicle owners, should the receipts not be netted off against spend? So, we have used the same approach that national income statisticians employ for measuring the value of the use of houses – we have calculated the imputed rent. For more detail on this, how it is done and why, see below.

However, even using the imputed rent methodology, the value of sales is not irrelevant. This is because dealers, to stay in business, buy at one price and sell at another. And very often they add value to the vehicle which they are selling. As a minimum they spend on advertising and marketing, which is genuine business expenditure and a contribution to GDP. But normally they do rather more than that: at least improving the appearance of the vehicle with deep cleaning and polishing and often rather more, replacing at least the most obvious parts that need repair. So, the money made by dealers needs to be calculated and included in the 'value added' created within the economy.

This section also analyses the other ownership related elements of expenditure.

5.2 Classic and historic vehicle sales

There is no precise data for such sales but we have used data for total sales of used vehicles and made estimates of the proportions which are historic. From this we have estimated the total value of sales which is set out in Table 5 below.

Figure 9 Used classic and historic vehicle sales, 2019

	Total sold	Average price (£)	Total value of sales (£)
Cars	222,728	7,047	1,569,605,516
Motorcycles	65,558	2,984	195,624,543
LGVs	71,163	4,491	319,611,022
HGVs	7,326	5,035	36,884,945
Buses	4,106	3,033	12,453,404
Others	20,701	5,307	109,870,575
Total	**391,582**	**5,731**	**2,244,050,005**

Source: DVLA, Octane, Car and Classic, Autotrader, eBay, Cebr analysis

From the data on sales we have made an estimate of the contribution to the economy directly from dealers' markups. For this, we have also considered the separate ownership models. For example, for those sold through a dealership, the total value of this sale is equivalent to the revenue received for the business. On the other hand for an auction house, revenue is on a commission basis, so is only a smaller percentage of the total price. However our research has also shown that those sold through auction houses are typically higher value than those sold through a dealership. This adjustment has been accounted for. The results of our analysis can be seen below, with the total revenue received also used to estimate a wider suite of economic impacts.

Table 9: Economic impact of historic vehicle sales, 2019

	Total revenue (£)	GVA (£)	Employment (FTEs)	COE (£)
Cars	1,210,139,698	386,479,655	6,314	148,543,771
Motorcycles	144,852,162	53,996,739	960	23,638,572
LGVs	269,314,581	33,068,981	540	12,710,090
HGVs	31,080,447	5,172,355	67	2,099,822
Buses	10,493,641	1,746,334	23	708,959
Others	92,580,499	15,407,087	199	6,254,818
Total	**1,758,461,029**	**495,871,151**	**8,103**	**193,956,032**

Source: DVLA, Octane, Car and Classic, Autotrader, eBay, Cebr analysis

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5.3 Classic vehicle rental

Estimating the economic impact of classic vehicle rental is complex for several reasons. Bottom-up methodologies (those that rely on looking at firm or consumer-level data and building up a picture of the industry from this) are unreliable, as the industry is made up of many smaller firms. This means that financial data is relatively sparse, and confidently establishing that the majority of firms have been identified is difficult. In addition, many of the larger car rental firms for whom good data exists rely on relatively modern vehicle fleets, which are unlikely to contain many vehicles over 15 years old. For those that do have older vehicles in their fleet, establishing the relative economic impact attributable to these vehicles is complex, and ultimately not feasible.

Instead, we have looked at wider evidence on the UK's vehicle rental market and attempted to establish the proportion of this that is attributable to classic vehicles. By extrapolating data from a 2018 report for the BVRLA[12], and adjusting for growth in the industry from 2017-19, we estimate that the UK's total vehicle rental industry added £3.9 billion to UK GDP in 2019, employing over 14,500 FTE workers.

From this, we separately looked at the car rental market (worth about ⅔ of the total vehicle rental industry) and the non-car rental market. To ascertain an approximate estimate for the share of the rental industry attributable to classic vehicles, we considered the percentage of total registered vehicles that are considered classic for each vehicle type. Adjustments were made to reflect several factors, including the absence of classic vehicles in the fleets for many of the largest car rental firms, the lower propensity for classic cars to be available to rent, the higher average rental price for classic cars[13] and the lower average rental price for older commercial vehicles. From these revenue estimates, we used wider data on average ratios between key economic variables (such as GVA/turnover or average turnover per FTE worker) from the ONS's Annual Business Survey to estimate the full economic impact of the classic vehicle rental sector.

Overall, we estimate that approximately 5% of the economic footprint of the UK's vehicle rental sector is attributable to classic vehicles. The rental of classic vehicles generates approximately £272 million per annum in turnover, which adds £171 million to UK GDP through GVA contributions, directly employing nearly 800 FTE workers in 2019. These full impacts can be seen below, in Table 10.

[12] https://www.bvrla.co.uk/uploads/assets/uploaded/107f8a52-807d-4a00-95e8a67885c8a834.pdf

[13] This is due to the proliferation of high-end classic vehicle rental firms, such as HCHG, BookAclassic, Bespokes and Webb's of Weybridge.

Table 10: Economic impact of classic vehicle rental, 2019

	Revenue (£m)	GVA (£m)	Employment (FTEs)	COE (£m)
Impact of classic vehicle rental	272	171	777	27
Share of total vehicle rental industry	4.7%	4.5%	5.1%	4.9%

Source: DVLA, BVRLA, Nedrelid, ONS, Cebr analysis

5.4 Imputed rent

Outside of the economic impact of the purchase and rental of classic vehicles, there is a further intrinsic economic value associated with the value of the stock of classic vehicles.

There are two ways in which consumer spending on purchasing products can be included in GDP. One way is to measure how much is spent purchasing the products in the relevant period. This works best with consumables like food. The other is to measure what is called the imputed rent which comes from having access to the product during the relevant period. This is conventionally used for owner occupied housing but is generally the best way of measuring access to something of enduring value like a classic car.

Cars are generally treated in GDP measures as purchases and consumer spending on new car purchases is simply the amount spent on purchasing new cars each year. But there are two problems with using this approach for classic cars. First, such vehicles are normally kept for quite a long time and so the purchase spend may not be a good measure of the user value. Second, the vehicles are generally sold by other classic car users (even if a dealer or an auction house is an intermediary) and so in theory the sales should be netted off from the incomes. For these reasons we have used the theoretically appropriate method for durables of valuing classic vehicle usage using the imputed rent approach.

Imputed rent is value of the service provided to the owner of an asset. It is normally measured by a calculation based on the interest rate typical for borrowing against the asset though using market rental costs is an alternative approach[14].

Imputed rents per vehicle have been calculated separately, for each vehicle type. We have assumed that the imputed rent is distributed evenly throughout the average ownership length, for each vehicle. This allows a calculation of the annual imputed rent per vehicle, which when applied to the total number of vehicles, gives an estimate for the imputed total. These calculations, and the total imputed rents for each vehicle type, can be seen below in Table 11.

[14] For a good description of the imputed rent concept and discussion of measurement issues see https://www.bea.gov/help/faq/488 from the US Department of Commerce Bureau of Economic Analysis

Table 11: Imputed rent from classic vehicles, 2019

Vehicle	Number of classic vehicles	Number sold per year	Implied average years of ownership	Average value (£)	Annual imputed rent per vehicle (£)	Total annual imputed rent (£m)
Cars	1,607,182	222,728	7	5,421	751	1,207
Motorcycles	674,592	65,558	10	1,779	173	117
LGVs	375,019	71,163	5	3,722	706	265
HGVs	74,256	7,326	10	2,621	259	19
Buses	34,238	4,106	8	1,536	184	6
Others	253,483	20,701	12	4,163	340	86
Total	**3,018,770**	**391,582**	**8**	**4,178**	**542**	**1,636**

Source: DVLA, Octane, Car and Classic, Autotrader, eBay, Tradus, Cebr analysis

Overall, we estimate a total imputed rent of £1.64 billion in 2019. Driven by both the highest imputed rent per vehicle and the highest number of vehicles, the majority (£1.21 billion, or 74%) of this comes from classic cars. LGVs are second and motorcycles third, with HGVs, buses and other vehicles making only modest contributions.

It is worth emphasising again that this imputed rent is not captured through transactions nor represents tangible economic activity. As such, there is no associated turnover, employment or employee compensation.

Paradoxically, the alternative measure of ownership costs, which is the amount spent on purchasing the vehicles in a year, gives expenditure of £2.2 billion of which about £300 million is dealers' markups (which is included in the estimated value of the industry elsewhere in the calculation), giving a net expenditure of £1.9 billion per annum compared with the imputed rent calculation of £1.6 billion per annum. The differences are surprisingly small whichever approach is used.

5.5 Costs of ownership

Even outside of purchasing or renting a classic vehicle, significant costs are associated with the ownership of classic vehicles. These include the costs of maintenance and repair (discussed in a separate section in the following chapter), insurance, storage and fuel. For much of this analysis we are reliant as a starting point on excellent survey-based data from the FBHVC on the costs of classic vehicle ownership. Overall, we estimate that over £5 billion was spent by classic vehicle owners in 2019 on these items, generating nearly £1.4 billion in GVA contributions.

Specifically, within this section we consider the economic impact of four sub-industries associated with some of the major ownership cost drivers, outside of repair and maintenance. These sub-industries are:

- Vehicle storage facilities;
- Vehicle insurance;
- Automotive fuel retailers; and
- Vehicle transport services.

By considering the costs of ownership per the FBHVC survey, and extrapolating the costs per vehicle to our estimate for the number of classic vehicles per Section 4, we can estimate the spend associated with classic vehicles, attributable to the four categories above. Specifically, we estimate the following annual expenditure associated with classic vehicles in each category:

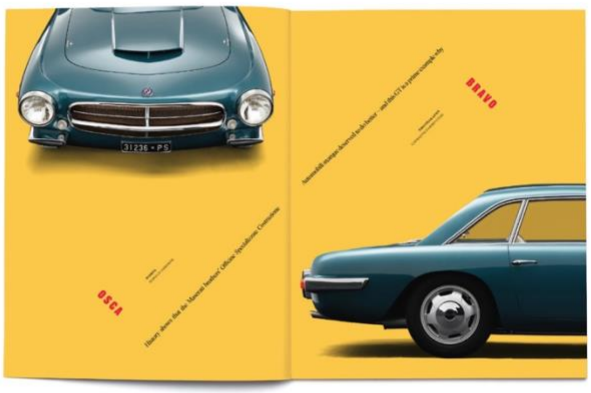
- £1.08 billion on vehicle insurance;
- £0.73 billion on fuel;
- £0.14 billion at vehicle storage facilities; and
- £0.07 billion on vehicle transport services.

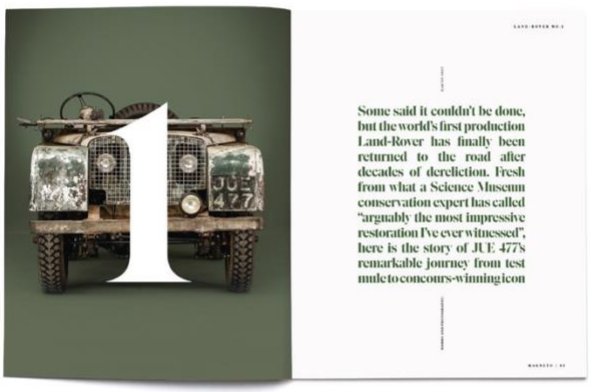
From these expenditure estimates, and wider industry-level data per the ONS' Annual Business Survey, we can estimate the full set of direct economic impacts associated with the spending. Combined, over 4,500 FTE jobs are supported by this spending, and nearly £500 million per annum in GVA is generated. Driven by the high expenditure estimates, insurance creates the greatest economic impact by each metric. The full results can be seen below in Table 12.

Table 12: Economic impact of spending by classic vehicle owners in key subindustries, 2019

	Revenue (£m)	GVA (£m)	Employment (FTEs)	COE (£m)
Vehicle insurance	1,081	319	1,989	114
Vehicle storage facilities	136	76	1,007	46
Automotive fuel retailers	730	49	905	21
Vehicle transport services	70	33	624	18
Total	**2,017**	**476**	**4,524**	**199**

Source: FBHVC, DVLA, ONS, Cebr analysis





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6. Direct economic impact of repair and maintenance

6.1 Introduction

Maintenance, restoration and repair costs make up a significant proportion of the economic impact of classic vehicles. This spending ranges from routine maintenance and the fitting of spare parts, to high-value restoration work and the preparation of vehicles for races, rallies or other events. Within this section, we consider both the economic impact of spending on maintenance and repair and the impact of spending on spare and replacement parts and accessories. Given the range of work done and magnitude of the sector, we have considered this separately from the other ownership costs set out in Section 5.4, although in reality these costs could be considered further costs of ownership.

6.2 The size of the market

To inform our analysis, we have used data from the FBHVC on average ownership costs, findings from our own survey and industry-level data from the ONS.

For expenditure estimates, we have again primarily relied on data from the FBHVC, which set out the average spend per vehicle for a number of categories, including:

- Tyres
- Brake parts
- Tools
- Engine oils
- Other oils and greases
- Light bulbs
- Major restoration work
- Garage and cover
- Minor repair work
- Routine maintenance

For modelling purposes, to ensure consistency with national accounting classifications, these have been categorised as either primarily maintenance and repair costs, where the key characteristic is the specialised labour required (such as the major restoration work), or primarily driven by the sale of parts and other goods (such as the sale of tyres or engine oils). However, clearly there is some overlap between the two - a service component exists with the sale of parts and other goods. Similarly, through the undertaking of restoration work, new parts may be required. As such we present both separate economic estimates for the two, and with a greater degree of confidence a combined economic impact for the entirety of the classic vehicle repair and maintenance sector.

Based on expenditure estimates per vehicle for each category above and our estimates for the total stock of classic vehicles, we determine the total market sizes as follows:

→ Total spend of £2.71 billion on maintenance and repair of classic vehicles in 2019; and

→ A further £0.44 billion per annum spend on parts and accessories for these vehicles.

→ **Combined, these give a total market of £3.15 billion per annum for new parts, maintenance and repair of classic vehicles.**

→

6.3 The economic impact

From these expenditure estimates, we can map out the full set of economic impacts associated with the sector. The results from our survey indicate several interesting trends for firms involved in the maintenance and repair of specifically classic vehicles, compared to the wider sector for all vehicles. Firstly, a significant wage premium (approximately 70%) exists for workers in the classic sector. This is presumably driven by the more specialised nature of the work and greater skillset required. Anecdotally, this may also be caused by a limited supply of labour driving up average wages - several firms we spoke to referenced a difficulty in finding labour with the required skills.

These higher wages also drive up the share of costs that are labour vs non-labour. For the wider vehicle maintenance and repair sector, labour costs make up approximately 17% of total costs for the average firm. However this more than doubles to 35% for classic restoration and repair firms.

These findings allow us to modify our estimate for the cost structure of the 'average firm' in the classic vehicle restoration and maintenance sector. From this, we can estimate wider macroeconomic impacts, including GVA, employment and total employee compensation for the sector. These results, for service-based maintenance and repair, parts and accessories, and a total sector estimate can be seen in Table 13.

Table 13: Economic impact of maintenance, repair and spending on parts for classic vehicles, 2019

	Revenue (£m)	GVA (£m)	Employment (FTEs)	COE (£m)
Maintenance and repair of classic vehicles	2,713	1,203	23,783	801
Sale of parts and accessories	437	126	1,830	69
Total	**3,150**	**1,329**	**25,613**	**870**

Source: FBHVC, ONS, Cebr analysis

The size of the industry is considerable, with the £3.15 billion per annum in spending, generating £1.33 billion in GVA for the UK economy and supporting over 25,000 FTE jobs. On average, £33,962 per annum is paid in employee compensation per FTE worker.

Another way of conceptualising this is that, in GVA terms, every classic vehicle directly added £440 to UK GDP in 2019, solely through spending on maintenance, repair and parts. In addition, one FTE job was supported for every 127 vehicles, through this same channel.

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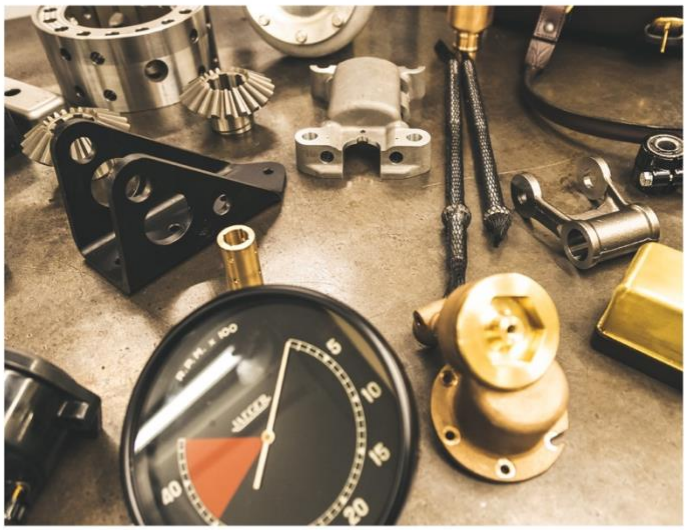

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7. Direct economic impact of historic motorsport

7.1 Introduction

This section looks directly at historic motor sport which is in itself an industry of significant size, and its economic impact. It gives a brief description of the industry and then looks at the two different components, racing and rallying and their economic effects. It should be noted that most of the information here is estimated and where in doubt we have generally used the more cautious estimates.

7.2 Historic motorsports

Historic motorsports are highly popular at two levels. There is great excitement amongst the spectators at the major showcase events while participants vie for prized entry. Two of this report's co-authors participated in the 2019 Peking to Paris Motor Challenge and can confirm directly the scale of interest as the rally ran across Asia and then Europe. Crowds of thousands appeared wherever the cars stopped[15]. The most prestigious events in the UK, the Goodwood events and those at Silverstone and elsewhere are oversubscribed and the ticket prices reflect the high demand. Other events attract multiple thousands of spectators.

The second level of popularity is among the participants. They spend substantial sums preparing their cars to participate in the events, as well as paying the often-hefty entry fees. Again, the prestigious events are oversubscribed. There is a massive waiting list for Goodwood (invitation only) while the 2022 Peking to Paris Motor Challenge was 8 times oversubscribed on the opening day for entries in February 2020.

It appears that historic rallying in particular is a fast-growing sport. Participation in various forms of beginner training has been running at around 600 a year and while not everyone who learns the basics will go on to compete, it appears that the numbers competing are growing, evidenced by the increasing investment in the sport. We estimate that there are about 200-250 historic rallies held in the UK in a normal (non Covid affected) year.

7.3 Historic motor racing

We have counted a total of nearly 900 classic events in the UK each year just from one website and it is likely that there is a considerable multiple of that held in total. We would estimate that around a quarter are racing events of some kind. In addition, many of the owners clubs organise racing events. This means that there is at least a similar number of racing events (excluding club events) to rallies – between 200 and 250 in a normal year. It should be noted that a typical racing event will probably include at least 10 races for different classes of competitors.

There appear to be some thousands of historic racing cars in the UK. Of these, some are very expensive and involve the expenditure of hundreds of thousands of pounds on race preparation annually.

Attendance at various events at Goodwood each year[16] is over 350,000. The next most highly attended racing event is the Silverstone Classic with an attendance of over 100,000.

The Goodwood Revival was introduced in 1988. In 2019, tickets cost £60 for Friday and £80 for Saturday or Sunday. From the 2012 Goodwood Revival, the British economy was estimated (by the organisers) to have benefitted £36 million, with £4 million raised in VAT alone for the Government. The local economic impact totalled over £12 million in revenue. The Bonhams auction raised £13 million and with it £500,000 in VAT receipts.

[15] For a description of this report's co-authors' experiences on the rally, see 'Driving the Silk Road – Halfway Across the World in a Bentley S1' by Douglas McWilliams, Whitefox, London December 2019.

[16] Technically the Goodwood Festival of Speed covers both modern and older vehicles

Looking at employment figures, Revival 2012 was associated with over 95,000 person-nights spent away from home of which over 24,000 resulted from people staying for more nights than needed to attend the Revival of which 58,000 and 13,000 stayed locally in the Chichester area.

We have estimated that the total revenue from all historic vehicle racing in the UK (spectators, sponsorship, entry fees, hospitality, other spectators' expenditure and car preparation) generate revenue of at least £370 million a year and cause the employment of nearly 7,000 full-time equivalents.

Table 14 Economic impact of historic vehicle racing

	Revenue (£m)	GVA (£m)	Employment (FTEs)	COE (£m)
Racing	371	224	6,752	170

Source: Cebr calculations based on estimates from Goodwood and elsewhere

7.4 Classic rallying

Even more fast growing than racing is classic vehicle rallying. This appears to be growing rapidly, based on two items of evidence – the scale of participation in initial training and the level of oversubscription for events.

We could identify between 200 and 300 historic rallying events in the UK, and there may well be many more and we estimate that there are about 4,000 cars that satisfy the definition of an historic rally car, though many of them are dual use and can be used perfectly happily on the road.

The events range from one day club events covering a small area to the triennial Peking to Paris Motor Challenge that traverses half the world. The 120 places in the latter are 8 times oversubscribed and ralliers spend multiple hundreds of thousands of pounds on the event. Although some of the expenditure from the Peking to Paris event is over the route which covers the whole Eurasian continent, the bulk is based in the UK because of the UK's central role in worldwide historic vehicle preparation and because the base of the rally organiser, HERO-ERA, is in the UK.

It is estimated that a major historic rally will cost £1,350 per car per day.

Currently the scale of classic rallying in revenue terms is not far short of that of classic racing. The revenue is just over £250 million and the number of full-time equivalent jobs just over 1,600. There is a significant spillover into other industries as can be seen from the data from HERO-ERA. Their events in the UK alone in 2019 led to a £500k spend across hotels, catering and venue hire and obviously this excludes the spending abroad for the Peking to Paris Motor. This spend is captured in the input output modelling.

Table 15 Economic impact of classic vehicle rallying

	Revenue (£m)	GVA (£m)	Employment (FTEs)	COE (£m)
Rallying	253	125	1,610	51

Source: Cebr calculations based on data from HERO-ERA and other sources


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8. Direct economic impact of other historic and classic vehicle events and owners clubs

8.1 Introduction

This section looks at the impact on the economy of historic and classic vehicle events other than races and rallies and the impact of classic vehicle owners clubs including club specific events.

8.2 Events

Our analysis of one website alone suggested at least 900 classic and historic vehicle events take place in the UK each year of which about a quarter are racing events. It is likely that this is the tip of a bigger iceberg. Classic Car Weekly claim that 10,000 events in 2020 alone have been cancelled as a result of Corona Virus[17] though this would include Club events (which we have categorised separately) and Motor Sports events (which we have also categorised separately).

Events create a considerable amount of economic activity from exhibitors, sales and those who attend. We estimate that, excluding motor sports events, these other events generate at least £46 million in revenue and create 241 full-time equivalent jobs. The actual number of people who are employed is of course many times greater than this but. most of the jobs are temporary and most are filled by volunteers. The details are in Table 16 below.

8.3 Owners clubs

The government lists owners clubs since they have an official role in keeping records of vehicles and their dates of production and eligibility for being categorised as, for example, tax exempt. They list 352 owners clubs for cars, motorcycles and other historic vehicles.

These owners clubs are hugely successful and appear to be a growing sector. Some have collections of historic vehicles, most have specialist magazines and the majority have collections of archive material. Many of the staff are voluntary and others part time yet despite this the sector creates 1,747 full-time equivalent jobs. Owners clubs also organise both social and competitive events.

We estimate that owners clubs earn £111 million per annum in revenue, generating £57 million directly in GVA as well as nearly 1,750 jobs.

Table 16 Economic impact of events and owners Clubs

	Revenue (£m)	GVA (£m)	Employment (FTEs)	COE (£m)
Clubs	111	57	1,747	47
Non-club events	46	24	241	12

Source: Cebr calculations based on data from owners clubs, from a short survey of accounts and events data from http://www.classicshowsuk.co.uk

[17] https://www.classiccarweekly.co.uk/magazine/issues/classic-car-weekly-7-october/

9. Direct economic impact of historic and classic vehicle museums

9.1 Introduction

This section looks specifically at the economic impact of museums specialising in classic and historic vehicles

The impact of museums as modelled only looks at the impact of museums whose primary role is providing information on classic vehicles. We specifically do not cover museums (such as those more generally with a historical or scientific focus, eg the Science Museum in South Kensington) that may have a portion of activity dedicated to classic and historic vehicles, but where this is not the explicit focus.

9.2 The classic museum sector

The official data for vehicle museum revenues totalled £62 million in 2019.

There are 68 museums in the UK which specifically focus on historic and classic vehicles, out of a total 2500 museums in the country. These are listed in

Table 18. Therefore, 2.7% of all the UK museums are focussed exclusively on classic and historic vehicles. Museums for which these vehicles only comprise part of the collection have not been included as classic vehicles have not been deemed the core focus of such museums.

The Haynes International Motor Museum is the UK's largest collection of cars from around the world with over 400 cars and motorbikes. The museum currently offers 19 individual exhibitions, from the dawn of motoring in the 1800s to nostalgic classics from the 1950-60s. The British Motor Museum, located in Gaydon, Warwickshire, is home to the largest collection of historic British cars (also around 400).

Other notable standout destinations for classic car enthusiasts include the Lakeland Motor Museum in Cumbria, Beaulieu National Motor Museum, and the Brooklands Museum. Lakeland has over 30,000 exhibits and was voted 'Britain's Best Classic Car Destination' by Practical Classics Magazine in May 2018.

Brooklands is of course famous for being home to the world's first-ever purpose-built racing circuit and was a major social centre pre-World War Two. The area is home to Mercedes Benz World and various other specialist institutions.

9.3 The economic impact of museums

We estimate that of the £61 million per annum revenue, the direct value added is £16 million. The modest contribution to the GVA of the sector is reflected in the employment numbers, where the total impact in full-time equivalents is 1,910.

Table 17: Economic impact of classic car museums, 2019

	Revenue (£m)	GVA (£m)	Employment (FTEs)	COE (£m)
Museum activities	62	16	1,910	61

Source: Classic Car Curation, British Motor Museums, ONS, Cebr analysis

Table 18 List of UK classic vehicle museums

Aldridge Transport Museum
Anglesey Transport Museum
Aston Martin Heritage Trust
Atwell-Wilson Motor Museum
A.R.E Motorcycle Collection
Battlesbridge Motor Cycle Museum
Beaulieu National Motor Museum
Bentley Wildfowl and Motor Museum
Bexhill Museum
Bicester Heritage Motor Museum
Bo'ness Motor Museum
British Commercial Vehicle Museum
British Motor Museum
Brooklands Museum
Bubblecar Museum
Bugatti Trust
Bury Transport Museum
C.M. Booth Collection
Castle Point Transport Museum
Caister Castle Motor Museum
Cloverlands Model Car Museum
Cotswold Motoring Museum & Toy Museum
Coventry Transport Museum
Craven Museum of Classic Bikes
Dover Transport Museum
East Anglia Transport Museum
Frazer Nash Archives
Glasgow Museum of Transport
Grampian Transport Museum
Haynes International Motor Museum
History on Wheels Museum
Hull Streetlife Museum
Ipswich Transport Museum
Isle of Man Motor Museum
Jaguar Heritage
Lakeland Motor Museum
Leicester Transport Heritage Trust
Lincolnshire Road Transport Museum
Llangollen Motor Museum
London Bus Museum
London Motor Museum
London Motorcycle Museum
London Transport Museum
Mercedes-Benz World
Manchester Museum of Road Transport
Moray Motor Museum
Moretonhampstead Motor Museum
Morgan Motor Museum
Morris Motors Museum
Museum of Speed
Myreton Motor Museum
National Motorcycle Museum
National Transport Museum
Newburn Motor Museum
Norfolk Motorcycle Museum
North West Museum of Road Transport
North Yorkshire Motor Museum
Oxford Bus Museum
Pembrokeshire Motor Museum
Scottish Vintage Bus Museum
Shuttleworth Collection
South Yorkshire Transport Museum
Swansea Bus Museum
The Patrick Collection
Trolleybus Museum
Whitewebbs Museum
Wirral Transport Museum

10. Direct economic impact of selected industries associated with classic and historic vehicles

10.1 Introduction

This section looks at various industries associated with classic and historic vehicles. We have separately looked at three specific sectors – magazines, models and 'clothing and regalia'.

10.2 Magazines and websites

The UK market is well served with classic car magazines and websites, from the established monthlies through to weeklies and the single marque titles, plus the owner clubs magazines – whether it's buying, selling, historic motorsport or restoring they all provide a wonderful source of content both in print and online for the strong community of classic car enthusiasts who have an enormous appetite to keep up to date with their passion.

In all we have counted 68 specialist classic and historic vehicle magazines excluding those of owners clubs and provided as part of the members' subscriptions, which have been included separately under owners clubs.

Our very cautious estimate that the magazines have annual revenue of £59 million and generate 335 full-time equivalent jobs.

We have not at this stage been able to estimate the contribution of classic vehicle websites, which in any case seem to be a moving target with the number rising fast. It is quite likely that their contribution is larger than that of the magazines.

10.3 Models

Models are a smaller subsection. We have estimated that the sector in the UK generates £11 million per annum in revenues though as the models are typically manufactured abroad the UK GVA content is low at £2.8 million and the jobs associated are also low at 34 full-time equivalents.

10.4 Clothing and regalia

Our rough estimate for the impact of clothing and regalia sales, based on working back from their advertising, is about £10 million per annum. This would not include sales at events which would be included under events.

10.5 Tools

We have looked at the size of the total industry and worked backwards from the amount of advertising to make an estimate of how much is spend on tools and equipment by amateur classic vehicle owners. We have concluded that a conservative estimate might be that they spend about £50 million a year. Machine Mart alone turned over £71.6 million in the year to end May 2019 although sales of equipment go somewhat beyond the classic and historic vehicles sector. Halfords UK turnover in financial year 2019 was £1,138.6 million, though again they sell a lot more than simply tools for classic cars.

10.6 Economic impact

We show a very cautious estimate of the economic impact of these industries in Table 19. Because of their production in the UK, the magazines seem to have the biggest impact on the economy.

Table 19 Economic impact of ancilliary industries

	Revenue (£m)	GVA (£m)	Employment (FTEs)	COE (£m)
Classic vehicle magazines	59	36	335	19
Classic vehicle models	11	2	34	2
Clothing and regalia	10	3	71	2
Tools	50	14	209	8
Total	**140**	**56**	**649**	**30**

Source: Cebr calculations based on estimates from a range of sources including magazine circulation data

11. Aggregate economic impacts

11.1 Introduction

The economic impacts discussed as part of Sections 4-10 represent the direct revenue, GVA, employment and employee compensation generated by the composite parts of the classic vehicle industry. However, there is a wider economic footprint supported that needs to be acknowledged. In particular our approach considers two further impact layers: indirect impacts and induced impacts.

11.2 The indirect impact

To conduct their operations, firms in the classic vehicle sector inevitably need to purchase goods from its suppliers. This helps to support output and jobs amongst their suppliers. In turn, these suppliers place demands on their suppliers which supports further output and jobs. The indirect impact captures the revenue, GVA, employment and employee compensation supported along the supply-chains as a result of these operations.

We had to be careful to not 'double-count' any impacts. This would occur where firms within the classic car sector purchase goods and services from others within the sector – for example a restoration firm purchasing parts from a specialist provider. If this were to occur and we captured this through the indirect impact of the restoration firm and the direct impact of the specialist provider, the same impact would be measured twice. Every effort has been made within our models to strip out this double-counting, ensuring the indirect impact only reflects spending by firms within the classic vehicle sector, on other firms not in the classic vehicle sector.

11.3 The induced impact

The workers who receive income and employment benefits through the direct (firms in the classic vehicle sector operations) and indirect (the suppliers to the sector and in turn their suppliers) channels spend their increased earnings on goods and services in the wider economy. This helps to further stimulate demand, supporting additional revenue, GVA, employment and employee compensation. The induced impact captures these wider-spending effects.

We define the aggregate economic footprint supported by the classic vehicle sector to be the sum of the direct, indirect and induced impact layers.

11.4 Input-output modelling

To model the relationships that exist between these impact layers, we use several bespoke input-output models. These models examine the structure of a firm or industry's supply-chain, allowing us to quantify the economic activity supported along them. In addition, by considering the typical distribution of household spending, the model allows us to calculate the output and employment associated with the induced impact layer.

To generalise our results, multipliers are then calculated. These multipliers are essentially ratios: providing the indirect and induced demand stimulus that is supported for a given amount of direct economic contributions.

Given the complex nature of the classic vehicle industry, with firms ranging from museums to garages, we have calculated several distinct input-output models.

Table 20: Detailed analysis by sector

Sector	SIC code	SIC description	Revenue (£m)	GVA (£m)	Employment (FTEs)	COE (£m)
Sale of classic vehicles	45.11/2	Sale of used cars and light motor vehicles	1,479	420	6,854	161
	45.19	Sale of other motor vehicles	134	54	960	24
	45.4	Sale, maintenance and repair of motorcycles and related parts and accessories	145	28	502	12
Ownership costs - Insurance, transport, fuel and storage	65.12	Non-life insurance	1,081	319	1,989	114
	52.21	Service activities incidental to land transportation	136	76	1,007	46
	47.3	Retail sale of automotive fuel in specialised stores	730	49	905	21
	49.41	Freight transport by road	70	33	624	18
Rental	77.11	Renting and leasing of cars and light motor vehicles	272	171	777	27
Renovation, maintenance and repair	45.2	Maintenance and repair of motor vehicles	2,713	1,203	23,783	801
	45.3	Sale of motor vehicle parts and accessories	437	126	1,830	69
Rallying	82.302	Activities of conference organisers	253	125	1,610	51
Racing	93.11	Operation of sports facilities	371	224	6,752	170
Clubs	94.99	Activities of other membership organisations	111	57	1,747	47
Non-club events	82.301	Activities of exhibition and fair organisers	127	24	241	12
Museums	91.02	Museum activities	62	16	1,910	61
Related industries - magazines, models and clothing and regalia	58.14/2	Publishing of consumer, business and professional journals and periodicals	59	36	335	19
	47.65	Retail sale of games and toys in specialised stores	11	3	34	2
	47.7	Retail sale of other goods in specialised stores	10	3	71	2
Tools	45.30	Sale of motor vehicle parts and accessories	50	14	209	8
Total			**8,252**	**4,615**	**52,140**	**1,664**

11.5 Total aggregate economic footprint

Table 21 Total economic footprint of the classic and historic motor vehicles industry (£m pa)

	Direct impact	T1 multiplier	Indirect impact	T2 multiplier	Induced impact	Aggregate footprint
Turnover	8,252	1.77	6,373	2.22	3,676	**18,301**
GVA (excl. imputed rents)	2,980	1.84	2,508	2.38	1,618	**7,105**
GVA (incl. imputed rents)	4,615	1.54	2,508	1.89	1,618	**8,741**
Employment (FTEs)	52,140	1.77	40,057	2.16	20,640	**112,837**
COE	1,664	1.98	1,636	2.45	769	**4,070**

Source: ONS, Cebr analysis

The aggregate economic impact of the industry is set out in Table 21. This combines the direct impact, the indirect impact and the induced impact to show the total aggregate footprint.

Total annual turnover for the sector is £18,301 million although this of course includes considerable double counting because of the high level of specialisation in the sector.

Total Gross Value Added (GVA) including the imputed rents as a measure of the cost of ownership is £8,741 million per annum.

The number of Full Time Equivalent jobs supported is 112,837.

11.6 Tax contribution

We have worked from the figures above to estimate the amount of tax revenue supported by the industry. Although quite a lot of the industry is not taxed directly (eg VAT only on dealers' margins, road tax exemption) other parts of the industry pay significant amounts of tax (eg fuel duty).

In total we estimate that the sector supports £2.9 billion of tax revenues per annum, mainly through income tax, National Insurance contributions and VAT.

11.7 Exports

We have not performed a full export analysis, something that might be worth undertaking for future reports. But the FBHVC report in 2016 indicated revenue of £662 million from exports of parts and services alone. Clearly the total export revenue from this sector will be substantially more than that.

11.8 Which industries most depend on the sector?

We have also carried out an analysis, extracting from the input-output analysis of the extent to which other sectors depend on the classic and historic vehicle sector.

This is shown in Table 22. There are 5 sectors where the spending resulting from the classic and historic vehicle sector is above £200 million a year. These are: construction of vehicle parts and equipment; vehicle repair;

transportation services (including vehicle transportation); hospitality and IT. Obviously this does not take account of any additional spend that might be made when people are, for example, touring in their vehicles.

Table 22 Dependence of other sectors on classic and historic vehicle sectors

	Spend on sector by classic vehicle sector (£m pa)
Construction of vehicle parts and related equipment	356
Trade and repairs of motor vehicles and motorcycles	293
Transportation services	250
Hospitality services	243
Computer programming, consultancy and related services	231

Source: ONS, Cebr analysis

12. Value of skills and apprenticeships

12.1 Introduction

This section considers how the specific skills and in particular apprenticeships in the classic and historic vehicle sector contribute to the economy. It evaluates the value of the specialist skills in the sector, using the standard excess wage methodology. It also looks at the qualitative value of preserving specialist historic craft skills for the nation.

12.2 Skills spillover benefits

Given the size of the classic car industry, and the significant demand for restoration and maintenance work for the 3 million classic vehicles, there is significant value in maintaining these essential key heritage skills.

As seen in Section 6, the restoration, maintenance and sale of parts for classic vehicles is worth over £1.3 billion in GVA to the UK economy. One approach for measuring the specific value associated with these skills, is using the observed wage premium for workers in the classic vehicle sector over those simply restoring and maintaining all vehicles.

Intuitively, at least for a sustained period of time, a firm will not pay a worker more than the value of the output they produce. The fact that firms in the classic vehicle maintenance sector on average are spending more on labour costs per worker, implies that the specialised skills these workers have leads to a greater level of output. This benefits the firm through higher revenues, the worker who would anticipate seeing a portion of this through higher wages, and the economy as a whole due to both.

Using this approach, with the average wage premium used as a proxy for the additional output each worker is likely to produce, **we estimate that the specific skills that classic car maintenance and restoration workers possess are worth at least £335 million per annum to the UK economy.**[18]

This is a slightly conservative estimate for several reasons. Firstly, this assumes that the entirety of the additional output that these workers produce is reflected in higher wages. In reality, firms are likely to also see an increase in profits, which would feed through to a GVA estimate higher than the £335 million above. As such, this represents something of a 'lower bound' for the true value of these skills.

Secondly, anecdotally through interviews with industry figures, we heard several times that the UK's high level of specialised skills means that significant portions of revenue come from overseas clients. This incentivises overseas vehicle owners – especially those that own high value vehicles for whom this is a cost-effective solution – to store their vehicles in the UK. This can lead to further economic benefit through additional spending in the UK, for example for vehicle transport or storage firms. These benefits are very difficult to quantify, but clearly represent a significant 'second-order' economic impact.

The ability to restore a classic car requires a variety of skills. Restorers will always have a strong knowledge of the mechanics and electrics of the vehicles. Often all the parts required for restoration are not readily available. Only the most experienced in the field are able to cast parts such as washers, discs, plates, and nuts. Restoration may require the use of a telescopic magnet and expensive machinery such as The English Wheel (costs up to £1,900). Companies such as Frost specialise in this machinery. Bodywork often is the hardest work of these projects. Most hobbyists do not have the skills and techniques to beat panels.

[18] It is worth clarifying that these benefits are not additive to the GVA benefits discussed in Section 6. Instead, these benefits are captured within the £1.3 billion in GVA that the maintenance and repair sector generates, through the employee compensation component of GVA. The correct interpretation would be that of the £1.3 billion generated, £335 million is attributable to specialised skills that maintenance and repair workers possess.

12.3 Value of apprenticeships

Apprenticeships provide valuable skills and learning experiences, allow prospective employees to demonstrate value to employers in a hands-on setting and provide a boost in wages, particularly for young workers. The corresponding lift in productivity helps the general economy, as qualified apprentices bring enhanced skills into the broader workforce. This is particularly pertinent for an industry such as classic car maintenance that is reliant on employees with specific technical skills. The benefits also remain with trainees throughout their careers, enhancing their earning power and performance. They can even manifest in different industries through developing a strong skills base, for example through the provision of basic engineering skills.

These productivity gains are a direct contribution to the UK economy and help reduce the productivity gap between the UK and other developed countries. Cebr estimated that apprentices contributed £34 billion to the UK in 2014.[19] The latest ONS data shows that UK has had 4.5 million apprenticeship starts, since May 2010, although this has been in decline since 2015/16. Apprenticeships starts by year can be seen in Figure 10.

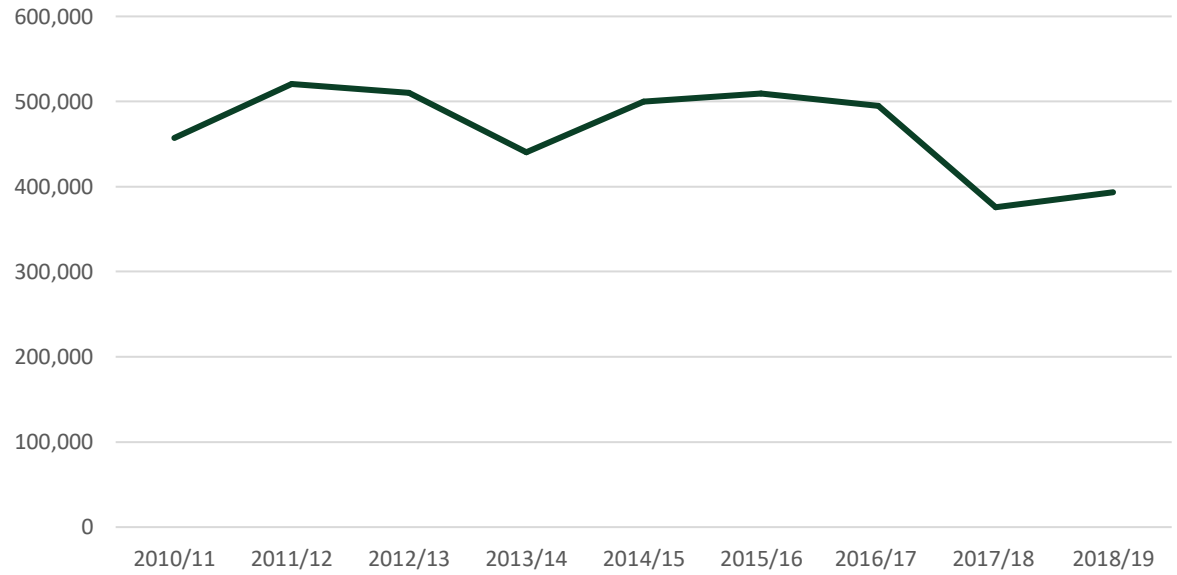
Funding apprentices

There are two bases for funding apprentices.

If your annual paybill is £3 million or more, you have to pay a levy, calculated at 0.5% of your annual paybill. All employers get a £15,000 annual allowance (ie 0.5% of £3 million) to offset against the amount they have to pay. Each employer has an account and they can work with training providers to agree on an apprenticeship programme suitable for their business.

If your annual paybill is under £3 million, you do not have to pay the levy but can still benefit from the apprenticeship system. If you do not pay the levy you have to contribute 5% towards the cost of the required apprenticeship and the government will pay the remaining 95%.

Figure 10: Apprenticeship starts by year, 2010/11 - 2018/19



Source: ONS, Cebr analysis

[19] https://cebr.com/reports/economic-impact-of-apprenticeships/#:~:text=The%20Cebr%20report%20reveals%20the,national%20economy%20gains%20%C2%A321.

By breaking down these apprenticeship starts by industry, and comparing this with the structure of the classic vehicle sector as defined in Sections 5-9, we can estimate the number of apprentices employed within the classic vehicle sector. By then looking at estimated output, average subsidy and training cost per apprentice by industry, we can estimate both gross and net gains from the hiring of apprentices in the classic vehicle industry.

→ **Overall, we estimate that the classic vehicle industry employed 665 apprentices in 2019, who produced £22.4 million in gross output.**

→ **Factoring in subsidies and training costs, this translates to a net gain of £13.3 million in GVA[20]. This is equivalent to a GVA boost of £19,981 per apprentice.**

It is worth noting that these impacts solely represent the single-year gain in 2019 of employing apprentices. The true value comes both from these impacts, but also the anticipated longer-term productivity boost, benefitting both firms through higher profits and employees through higher wages.

12.4 The value of historic craft skills

Apart from the quantifiable benefits there are additional values from preserving historic craft skills. The Institute of Historic Building Conservation advises that these create additional value: 'Conservation practice creates more skilled jobs (professional, technical, skilled manual, and vocational) and employment in craft-based industries[21].

There are four reasons why such craft skills are so highly valued.

First, they promote a culture of repair rather than making from fresh. This is inherently more sustainable, contributing to the very low environmental footprint of the sector.

Second, such skills once lost are hard to recreate. They are passed on by experts, often within families and once these experts are lost, many of the tricks of the trades are hard to work out from theory.

Third, although it would be wrong to pretend that craft-based work is easy (quite the opposite), surveys of job satisfaction seem to generate results showing very high levels of job satisfaction for those doing craft work. A survey in the US showed that craft workers were amongst the top 8% of most satisfied workers[22].

Finally, craft work creates particular opportunities for integrating people who are hard to get into the labour force. Government evidence to the House of Commons Home Affairs Select Committee highlights the role of training in car mechanics especially in helping reduce reoffending rates amongst former prisoners[23].

[20] The calculations take account of apprenticeship levy payments and government subsidies

[21] https://www.ihbc.org.uk/skills/resources/IHBC-Valuing-Historic.pdf

[22] https://www.careerexplorer.com/careers/craft-artist/satisfaction/

[23] The Government reply to the first report from the Home Affairs Committee 2004-05 HC 193

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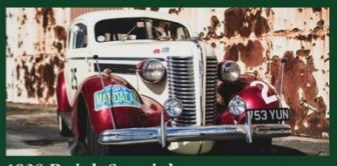


1938 Buick Special

1938 AC 16/80 March Special

1956 Triumph TR3

1958 MG A Roadster

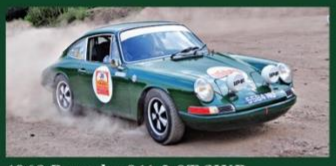
1961 Alfa Romeo Giulietta S.V.

1961 Alfa Romeo Giulietta SS

1964 Triumph TR4

1966 Triumph TR4 A

1968 Jaguar E-Type Series 1.5 4.2 FHC



1968 Porsche 911 2.0T SWB

1969 Lancia Fulvia Sport Zagato

1970 Porsche 911 2.2 S

1971 Alfa Romeo GTV 1750

1972 BMW 1602 2 door

1974 MG B Roadster

1979 Fiat 124 Sport Spider

1980 Range Rover Classic 3.5 V8

1983 Volkswagen Golf GTI Mk1

1990 Lancia Delta Integrale

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13. Environmental impact of classic and historic vehicles

13.1 Introduction

It might be imagined that classic and historical vehicles, often produced well before emissions legislation became widespread, could have negative environmental effects. This section looks carefully at this concept, comparing the impact of spending on classic and historic vehicles with that on a normal basket of consumer spending.

The results are clear. The environmental footprint of spending on classic and historic vehicles is very much lower than that of normal consumer spending. This is for three reasons:

1) Spending on classic and historic vehicles has a high labour and conservation content and a low energy and materials content;
2) The philosophy of repair rather than build new means that the industry focuses on reuse rather than building from scratch; and
3) Classic vehicles are valued at least as much for show as go and typically have very low levels of usage.

13.2 Methodology

This subsection describes the methodology for the environmental impact measurements.

We have examined the environmental impact in three different ways.

For the first methodology, we stream each type of expenditure associated with the sector through the input-output model to discover the knock-on impacts on a series of selected emission generating sectors.

Then we model the impact on greenhouse gas emissions for key emitting sector and sum these up. Then we normalise the impact into the effect per £1,000 of spend and compare this, using the same methodology, to an average basket of £1,000 of consumer spending.

These results have been standardised to 2018 impacts (the most contemporary emissions by sector data that exists).

Second, we use this data plus the emissions data for historic and classic vehicle usage to compare the annual emissions from ownership and usage with those from a range of other activities.

Finally, since classic car ownership is a luxury and in principle any money that might be spent on the sector might just as easily have been spent elsewhere we compare the impact of spending £1,000 on classic and historic vehicles with that of spending the same amount on other possible products.

13.3 The results of the input output analysis

The results of the input output analysis are shown in

Table 23. The key conclusion is that the sector is very much less polluting than the average for consumer spending for the key areas chosen. An average £1,000 of consumer spending leads to 61.03 kg of CO_2 equivalent emissions from these key emitting sectors. By comparison, spending the same amount on classic and historic vehicles would lead to 28.55 kg of CO_2 equivalent emissions, only 43% of the average.

So, if classic vehicles did not exist and their otherwise owners spent their money in a normal way, it would lead to a level of emissions in these key sectors more than double those from the money spent on classic and historic vehicles.

Table 23 Emissions impact of classic and historic vehicles sector compared with average consumer spending

	Spending distribution for every £1,000 spent within key emitting sectors					Emissions per £1000 of sector turnover (tonnes of CO_2 equivalent)	Emissions (kg of CO_2 equivalent) within sector for every £1000 spent	
	Average consumer	Classic vehicle sector						
		Sales and rental	Ownership	Events & other	Average across sector		Average consumer	Classic vehicle sector
Coal and lignite	0.21	0.00	0.00	0.00	0.00	0.84	0.18	0.00
Extraction Of Crude Petroleum and Natural Gas & Mining Of Metal Ores	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.00
Other mining and quarrying products	0.06	0.00	0.05	0.05	0.03	0.18	0.01	0.01
Coke and refined petroleum products	5.07	11.23	7.25	9.03	8.56	0.64	3.26	5.50
Industrial gases, inorganics and fertilisers (all inorganic chemicals)	0.06	0.01	0.01	0.07	0.01	0.72	0.04	0.01
Petrochemicals	0.00	0.00	0.00	0.03	0.00	0.33	0.00	0.00
Dyestuffs and agro-chemicals	0.19	0.04	0.07	0.01	0.06	0.32	0.06	0.02
Other chemical products	0.00	0.00	0.00	0.16	0.02	0.08	0.00	0.00
Electricity, transmission and distribution	15.29	11.31	7.83	5.82	8.62	0.88	13.41	7.55
Gas; distribution of gaseous fuels through mains; steam and air conditioning supply	14.74	1.85	1.35	2.42	1.60	0.26	3.81	0.41
Waste collection, treatment and disposal services; materials recovery services	0.04	2.79	1.70	0.27	1.87	0.80	0.03	1.49
Land transport services and transport services via pipelines, excluding rail transport	14.10	13.37	37.41	1.56	27.03	0.40	5.66	10.85
Water transport services	8.43	1.65	1.20	2.58	1.46	0.31	2.64	0.46
Air transport services	16.17	0.00	0.00	11.44	1.14	1.97	31.94	2.25
Total	**74.36**	**42.24**	**56.88**	**33.42**	**50.40**		**61.03**	**28.55**

Source: ONS, Cebr analysis

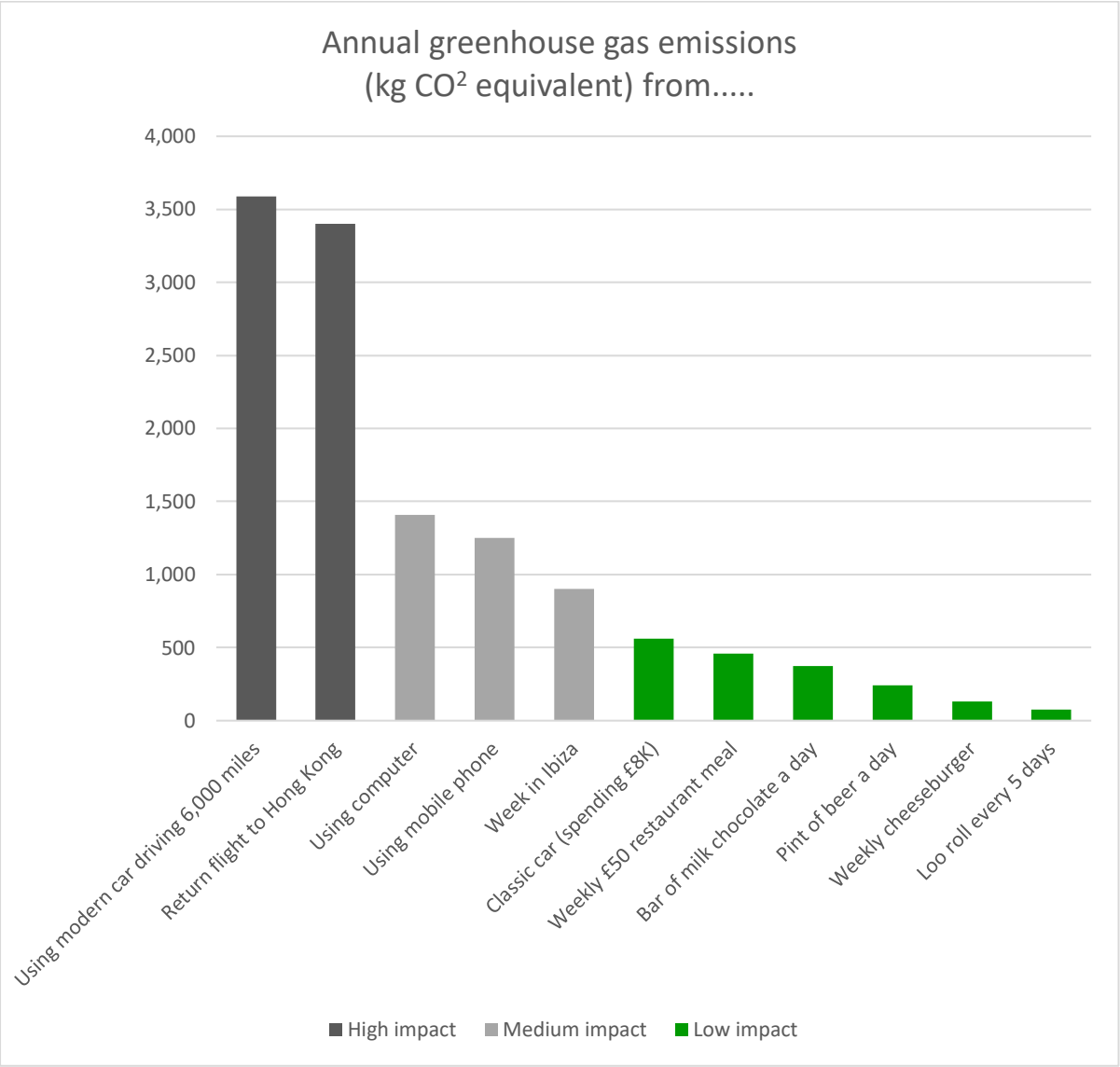
13.4 Comparison with annual spend from on different other aspects

The second basis of comparison is to look at the impact of annual spending on a range of different activities.

Here we compare with modern cars, holidays (long haul and short haul), with IT like computers and phones, with daily activities like drinking beer and eating chocolate, with food purchased from burger bars and from restaurants and with a daily staple – the loo roll!

The average user of a classic car produces 563 kg of CO_2 equivalent emissions in a year. This is still too much and the industry is working to bring it down. But it needs to be seen in context. It is around half the emissions from using a computer or a mobile phone or from going on a week's holiday in the Mediterranean. And it is a sixth of the impact of using a modern car regularly or taking a return flight to the Far East. But the annual emissions from a classic car are more than those from a bar of chocolate a day and a pint of beer a day and much more than those from loo rolls.

Figure 11 Annual greenhouse gas emissions from various different activities



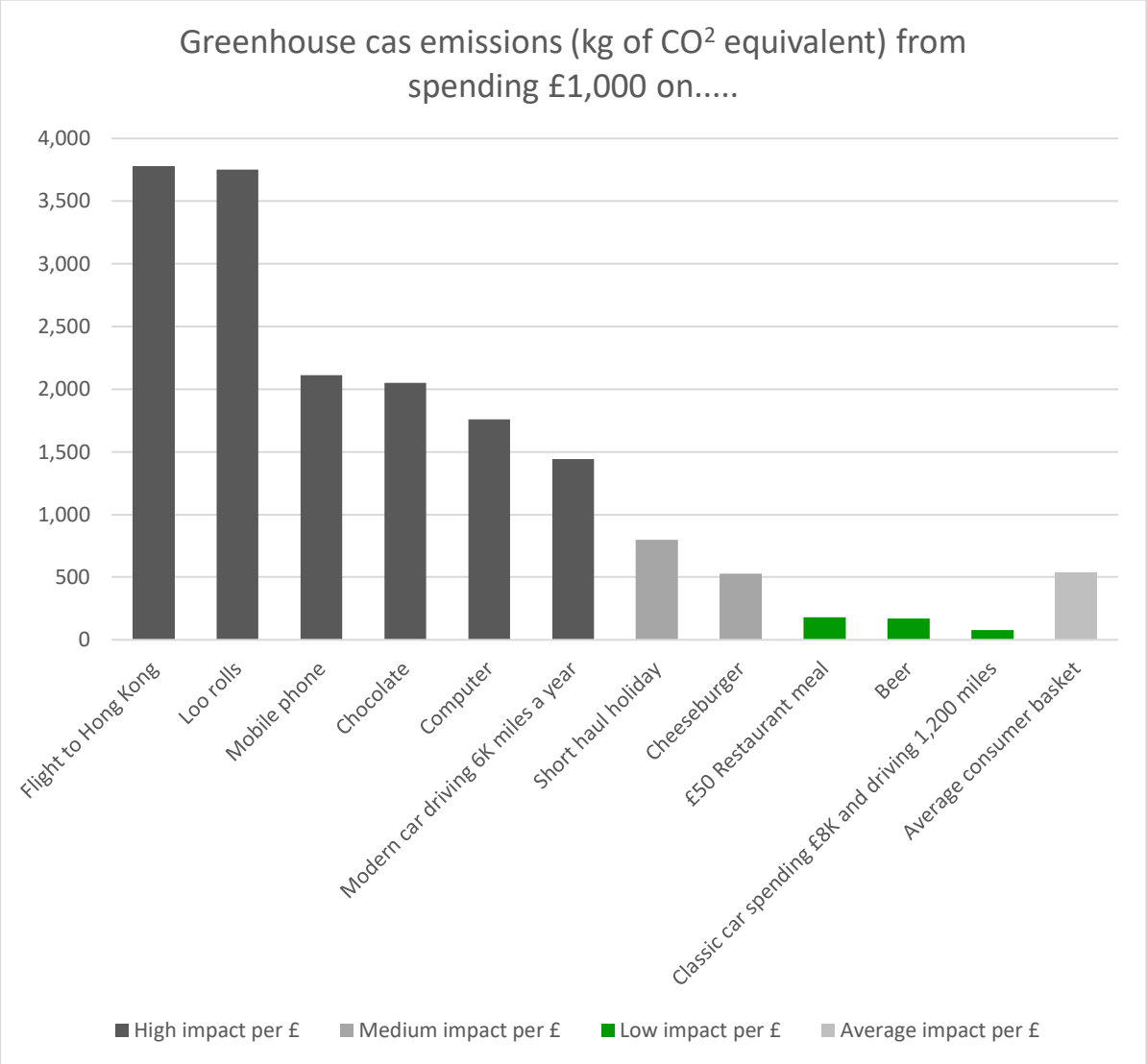
13.5 Emissions of £1,000 of spend

But given that historic and classic vehicles are luxury goods, it is probably more appropriate to compare the environmental impact of spending on them compared those from spending the same amount on other activities.

The average £1,000 spent on owning and using classic cars creates 80 kg of CO_2 equivalent emissions, after taking all the inputs into account. This compares with 537 kg of CO_2 emissions that would result from an average £1,000 of consumer expenditure, measured the same way.

But more telling is the comparison with other areas of luxury spend. If you spend on classic cars rather than spending the same money going to the pub or eating restaurant meals you halve your environmental emissions. If you spend on classic cars rather than spending a similar amount on short haul holidays you cut your emissions by 90% and compared with flying to the Far East you cut your emissions by as much as 98%.

Figure 12 Greenhouse gas emissions per £1,000 spent



So, even using existing technology, historic and classic vehicles actually are contributing to the greening of the economy, and technological change in future will enable the sector to contribute further.

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14. The historic and classic vehicle sector and the UK's wider heritage sector

14.1 Introduction

As the UK was the first economy in the world to industrialise, industry and mechanical products are a vital part of the UK's heritage.

Cebr has specialised amongst other things in the valuation of the heritage to the UK and has produced many reports on this.

Specifically in this report we compare the classic and historic vehicle sector with the wider heritage sector, basing our data specifically on the Cebr report commissioned by Historic England and published on the Heritage Counts website.[24]

In this section we also examine the distribution of the industry through the country, making estimates based on the locations of vehicles advertised for sale.

14.2 Valuation of the heritage

The introduction to the Heritage Counts website explains the value of the heritage to the UK in resounding terms.

It deals with issues of definition: '*Are we talking about the built historic environment, natural heritage or intangible culture such as stories, knowledge and practices that people and communities have amassed over the years. And who decides what counts as heritage? 'Official' heritage is generally identified through a top-down process in which public agencies classify and promote heritage sites according to established criteria and particular regional, national and international values – but 'unofficial' heritage is also brought about locally through the bottom-up relationships between people, objects, places and memories*.'

The report points out that the value of the heritage has 'hard' elements such as those that can relatively easily be identified and measured by economists and softer elements that are essentially unquantifiable but help to build up both personal and social capital.

14.3 Classic and historic motor vehicles as a contributor to the heritage

But heritage is not just old buildings and museums. It goes much further into the various objects that form part of history. Britain was the first country to industrialise and many industrial processes originated in the country.

But in many ways the motor industry has been the classic component of the country's industrial heritage. Cars are the major consumer purchase other than houses. More than three quarters of households in the UK own a car and they are associated with providing freedom for many people.

The most recently published National Cost of Ownership Survey report[25] published by the Federation of British Historic Vehicle Clubs in 2019 indicated that 9.8 million people in the UK were interested in historic vehicles; 21 million people see historic vehicles as an important part of the UK's heritage and 5.1 million are interested in owning an historic vehicle.

This is a huge vote of confidence in the sector.

14.4 Comparison of historic vehicles and buildings

Both historic vehicles and buildings contribute to the economy.

[24] https://historicengland.org.uk/research/heritage-counts/

[25] https://www.fbhvc.co.uk/uploads/files/2019%20FBHVC%20Cost%20of%20Ownership%20Summary.pdf

The Cebr research on the contribution of historic buildings to the economy calculated that they contributed £36.6 billion per annum to the UK's GVA and in total to supporting 564,000 jobs. This compares with an aggregate GVA contribution of £7.1 billion per annum from historic vehicles excluding imputed rent, supporting 113,000 jobs.

Most metrics show the historic vehicles sector as contributing about a fifth as much to the economy as all the historic buildings in the country. This is a very significant and impressive result and shows how important vehicles are as a contributor to the national heritage.

14.5 Conservation

The sector is essentially based on conservation, which is becoming an essential part of a modern economy. The conservation is embedded not only in the vehicles but in the museums, the usage and in the craft skills required to keep the vehicles in existence.

14.6 Bicester Heritage

One area where historic buildings and historic cars coincide is the innovative development Bicester Heritage. Bicester Heritage is the first business campus dedicated to historic motoring, based at the UK's best-preserved WW2 RAF bomber station – the former RAF Bicester.

The RAF's Technical Site has been restored and updated for modern purpose, creating not just a destination, but a thriving hub of industry geared toward supporting the wider motoring community. The owners of the site have refurbished and restored the red brick buildings, hangars, tree-lined avenues and airfield to provide an authentic period setting for specialists, vehicle owners, enthusiasts and visitors to meet, share their passions and immerse themselves in a classic age.

The economics of the cluster of businesses operating from Bicester Heritage reflect the ability to minimise one of the key costs in the vertically disintegrated sector. Because of the differentiated specialist skills involved, one of the major costs for the classic car sector is travelling and ferrying parts between suppliers. Bicester Heritage has benefitted from sufficient demand and sufficient space to try to enable key specialist suppliers to be on the same site. This significantly boosts productivity.

Bicester Heritage is a component of Bicester Motion, a more extensive development which plans to create the UK's principal destination for anyone who wants to experience motor cars from all eras, including the future.

Bicester Motion is planned to be an important visitor attraction, offering an authentic collection of dynamic and inclusive visitor experiences, arranged over four hundred acres and home to four Quarters: Innovation, Heritage, Experience and Wilderness.

Within these, guests will be able to immerse themselves in the breadth of British automotive and aviation culture past, present and future, and explore open parkland, beautiful lakes, nature trails and relax in the trackside hotel and lakeside lodges which will surround this unique destination.

14.7 Regional distribution of the sector

There is no data on how the sector is distributed regionally. But there is some regional data on the distribution of classic cars for sale. We have used this to produce a rough and ready set of estimates of how turnover, GVA and employment for the sector might be distributed around the country.

These are shown in Table 24. We warn against placing too much reliance on what must inevitably be a very rough and ready calculation. But even with this caveat, it is clear that this is a sector with a very wide distribution around the UK. London, despite its economic dominance, only accounts for 5% of the activity. Meanwhile the West Midlands, traditional home of the motor industry, accounts for nearly twice as much. It is clear that this is a widely dispersed industry.

Table 24 Regional distribution of the classic and historic vehicles sector

	Share of cars	Turnover (£m)	GVA (£m)	FTE
Bedfordshire	1.2%	220	105	1,353
Berkshire	1.6%	286	137	1,764
Buckinghamshire	3.3%	610	291	3,762
Cambridgeshire	1.2%	213	102	1,316
Channel	0.3%	50	24	308
Cheshire	3.0%	543	259	3,346
Bristol	0.6%	105	50	649
Cleveland	1.7%	313	149	1,927
Cornwall	0.7%	123	59	761
Cumbria	0.3%	61	29	378
Derbyshire	1.3%	230	110	1,419
Devon	1.6%	292	140	1,801
Dorset	2.2%	407	195	2,511
Durham	1.7%	306	146	1,885
Essex	4.8%	876	418	5,400
Gloucestershire	1.4%	263	126	1,624
Hampshire	3.5%	643	307	3,967
Herefordshire	0.4%	72	34	443
Hertfordshire	2.1%	393	188	2,422
Isle of Man	0.0%	6	3	37
Isle of Wight	0.2%	34	16	210
Kent	4.2%	768	367	4,732
Lancashire	5.6%	1,030	492	6,352
Leicestershire	1.8%	331	158	2,039
Lincolnshire	1.9%	340	162	2,095
London	5.3%	961	459	5,927
Merseyside	0.7%	127	61	784
Middlesex	1.2%	216	103	1,330
Norfolk	1.6%	288	137	1,773
Northamptonshire	1.1%	207	99	1,279
Northern Ireland	0.8%	142	68	873
Northumberland	0.3%	61	29	378
Nottinghamshire	0.9%	159	76	980
Oxfordshire	2.5%	451	215	2,781
Scotland	2.6%	483	231	2,977

Shropshire	0.6%	114	54	700
Somerset	0.9%	173	83	1,069
Staffordshire	1.0%	182	87	1,120
Suffolk	1.2%	214	102	1,321
Surrey	3.6%	661	316	4,074
Sussex	4.5%	819	391	5,050
Tyne and Wear	0.6%	110	52	677
Wales	2.7%	494	236	3,043
Warwickshire	1.6%	285	136	1,755
West Midlands	9.6%	1,755	838	10,823
Wiltshire	1.2%	229	109	1,409
Worcestershire	0.9%	163	78	1,003
Yorkshire	8.2%	1,493	713	9,208
Total	100.0%	18,301	8,741	112,837

Source: Car and Classic, ONS, Cebr analysis

14.8 Clusters

The historic and classic motor industry and the UK motorsports industry feed off each other (both have historic links to the UK's aerospace and motor vehicle sectors). Of the ten F1 teams, eight have at least a presence in the UK and six have their main base in the UK. Most noticeable is the cluster near the racing circuit at Silverstone where 4,300 high tech companies employ 41,000 employees in highly skilled jobs. Bicester Heritage (see above) is within this cluster and benefits from the concentration of skills in the area.

Companies that would not normally be thought of as having a UK base including parts of Ferrari, Mercedes and Renault have strong motor sports links to the UK. The supply chain for these businesses incorporates advanced skills such as 3D printing that can be used to support the historic and classic motor vehicles sectors.

Other automotive clusters are near the British Motor Museum at Gaydon and the Advanced Manufacturing Centre at Warwick University, near McLaren in Woking, near Ricardo and Rolls Royce in Sussex; in the North East of England based on Nissan and near JCB and Toyota in Derby. Many of these companies link with the modern automotive industry and with motor sports but their skills are also applied to the historic and classic motor sector as well.

15. Conclusions and the future

This report has shown how important the historic and classic vehicle industry is to the UK. It is a substantial driver of jobs and economic activity.

It supports a wide range of historic and craft skills whose value is recognised by a 70% wage premium.

It is the opposite of London centric – in fact London only accounts for 5.3% of the activity of the entire sector. Instead it is widely distributed throughout the country with 9.6% of the industry in the West Midlands and 8.2% in Yorkshire.

Looking forward, the industry will have to match the times. Advances in modes of propulsion may make it difficult to use internal combustion engines, at least in crowded cities. It is important that the industry's leaders work with regulators to ensure that the current enthusiasm is not burnt out by fear that the use of these vehicles will be banned or so circumscribed by regulations that potential owners think of them as unusable.

We estimate that the value of the fleet of classic vehicles is £12.6 billion. This could be wiped out if people are scared off buying such vehicles.

And if the industry were to disappear, £8.7 billion per annum of GVA and 113,000 jobs would have to be replaced.

Fortunately, the level of enthusiasm for the sector is such that there are grounds for confidence that this will not happen. But it pays not to be complacent.

Another potential challenge is Brexit. At time of writing the nature of the post Brexit trade agreement between the UK and the EU is uncertain. Almost certainly the biggest impact of Brexit will be through its impact on the various economies affected. There is a wide range of views about this and it is best in a report of this nature not to speculate on this matter.

Clearly 2020 has been a challenge with the events calendar largely wiped out, though there have been exceptions. However, an encouraging feature has been the extent to which the industry has survived through the lockdown.

Classic car prices have remained remarkably solid and with interest rates in many countries low to negative and fears of asset price crashes, many wealthy individuals have decided to invest in vehicles on the basis that if they can't get a return at least they can have fun.

Many workshops have said that they have been extremely busy through the lockdown as owners have decided to take advantage of the events hiatus to pursue long planned rebuilds or upgrades.

And those who live on routes often used by classic cars have seen plenty of evidence of owners using their vehicles.

So the sector is robust. And with the right encouragement can continue to boost the UK economy, promote the best of British skills and encourage the greening of the economy.

16 Acknowledgements

HERO_ERA acknowledge and thank the companies below for their time, energy and enthusiasm in providing vital information for the compilation of this important document for the Historic and Classic Motor Industry in the UK. Their unity of purpose has been admirable, thank you to you all.

Association of Heritage Engineers
Austin Healey Owners Club
Bentley Drivers Club
Bicester Heritage
Bicester Motion
Blue Diamond Riley Services
Brooklands Museum
Cars UK
Classic Performance Engineering
DT Vintage
DTR Engineering
Federation of British Historic Vehicle Clubs
Fuzz Townshend's Classic Oils
Greatworth Classics
Gulf Racing Fuels
Heritage Skills Academy
HERO Insurance Solutions
Historit
Hot House Media
Kingsbury Racing
Lancaster Insurance
Michelin
Motorsport UK
National Motor Museum
Pendine
Petrolicious
REIS Insurance
Robert Glover Ltd
Royal Automobile Club
StarterMotor
Straight 8
The Maserati Owners Club
The Porsche Club of Gt Britain
The Riley Owners Club
The Rolls Royce Enthusiasts Club
Vintage Car Radiator Company
Vintage Tyres
William Medcalf Bentley

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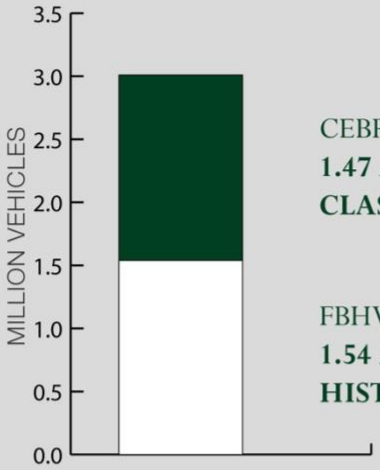
Facts and Stats CEBR

The UK Heritage motor sector has an aggregate **turnover of £18.3 billion**	**Page 52**
Historic and classic vehicle industry contributes **£8.7 billion per annum** of aggregate Gross Value Added (GVA) to the UK	**Page 21**
The sector supports **£2.9 billion of tax revenues per annum**	**Page 52**
Classic vehicle rallying generates **£253 million revenue** employing **1,610 FTE workers**	**Page 43**
FBHVC estimate **1.54 million historic vehicles** and Cebr estimate an additional **1.47 million classic vehicles** in the UK. Giving a total of 3.1 million vehicles	**Page 16**
The total stock of **classic vehicles** is **worth £12.6 billion**. Of which **69% are cars**	**Page 21**
Ford is the most popular classic car manufacturer in the UK with **172,553 classic cars**	**Page 23**
The total value of **Classic Porches** in the UK worth **£1.18 billion** with Porsche being the only manufacturer to exceed £1 billion. **£910.8 million** of which are generated by the **911**	**Page 23**
Bugatti is the car manufacturer with the **highest average classic car value** with an **average** worth of **£574,855**	**Page 25**
The UK's used **classic and historic vehicle sales** in 2019 reached a **total value of £2.2 billion**. **£1.6** of which are generated by **classic cars**	**Page 33**
The UK's **classic vehicle rental generates £272 million per annum** adding **£171 million to UK GDP** and directly **employing nearly 800 FTE workers** in 2019	**Page 34**
FBHVC estimate **700,000 classic vehicles owners** who **spent over £5 billion on costs** associated with the **ownership of classic vehicles**	**Page 37**
The total spend of **£3.15 billion per annum** for **new parts**, **maintenance** and **repair** of classic vehicles **supporting over 25,000 FTE jobs**	**Page 39**
2.7% of all the UK museums are **focussed exclusively on classic and historic vehicles**	**Page 46**
113,000 people employed across the supply chain. Same size of the UK ports and twice the size of the whisky industry.	**Page 65**
23,783 employees directly employed in the **repair and maintenance sector** who typically **earn a premium of 70% above the average wage** based on their heritage skills	**Page 40**
The classic car vehicle industry employed **665 apprentices** in 2019, who produced **£22.4 million in gross output**	**Page 56**
Specific skills that classic car maintenance and restoration workers possess are estimated to worth at least £335 million per annum to the UK economy	**Page 54**
Classic cars are only **driven** an average **of 1,200 miles a year**. The average user of a classic car produces **half of the CO_2 emission from using a computer or a mobile phone** and it is a sixth of the impact of using a modern ICE car regularly.	**Page 62**
Spending £1,000 on owning and using **classic cars produce 90% fewer emissions compared with** spending a similar amount on **short-haul holidays**	**Page 62**

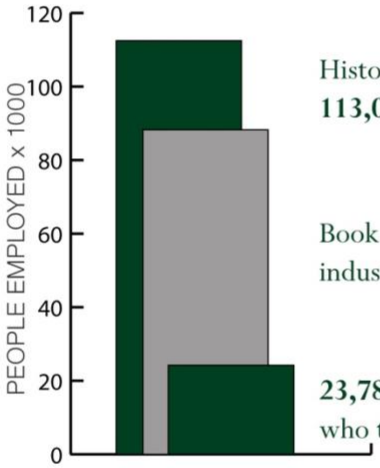
Vehicles in the UK
(page 16)



CEBR estimate an additional
1.47 MILLION
CLASSIC VEHICLES

FBHVC estimate
1.54 MILLION
HISTORIC VEHICLES

Employment
(page 65)

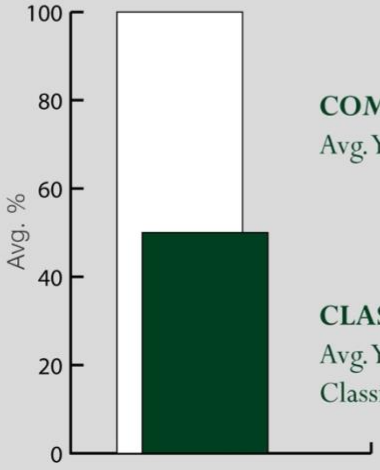


Historic Vehicles Supply Chain
113,000 PEOPLE EMPLOYED

Book & Publishing, Scotch Whisky
industries combined

23,783 directly employed in the repair and maintenance sector
who typically earn a premium of 70% above the average wage (page 39)

Emissions
(page 62)



COMPUTER OR MOBILE PHONE
Avg. Yearly CO_2 Emmision

CLASSIC CAR
Avg. Yearly CO_2 Emmision
Classic cars are only driven an average of 1,200 miles a year